20¢ APRIL 3, 1950

New Republic

BREAKING THE ATOMIC DEADLOCK

First of a series by the Editors

INCLUDING SPECIAL 8-PAGE SECTION ON "ATOMIC ENERGY: THE TECHNICAL FACTS"

NEW REPUBLIC, APRIL 3, 1950. IN TWO PARTS: PART ONE

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THE *Nation* ANNOUNCES AS ITS SPECIAL ROME CORRESPONDENT DURING THE CURRENT YEAR:

PAUL BLANSHARD

AUTHOR OF THE BEST-SELLER

"American Freedom and Catholic Power"

Best known for his exposure of Tammany while serving as head of New York City's Department of Investigations and Accounts under Mayor LaGuardia, Paul Blanshard has had a varied career of public service. He has studied theology, is a member of the New York Bar, and was a State Department official during World War II. His most recent book, **American Freedom and Catholic Power**, became a best-seller despite a press conspiracy of silence against it, and was honored by the Division of Public Libraries of the American Library Association as one of the 50 outstanding books of 1949.

THE emergence of the Vatican as a world political influence is one of the crucial and hushed-up developments of our time. This year, when the presence in Rome of thousands of pilgrims attests to the Vatican's power, it is timely to examine the Vatican's bid for authority as an **international state**, influencing national governments and their policies.

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- **Does the Vatican represent a new totalitarianism?**
- **How does it influence our State Department?**
- **What are its aims in Europe and the Middle East, and to what extent have they been attained?**
- **What are its methods of seeking power?**
- **Is Jerusalem earmarked to become a new Vatican City?**
- **What are Rome's relations with Mohammedanism?**

Readers familiar with Mr. Blanshard's famous articles on Roman Catholic policy in the United States, which appeared in *The Nation* in 1948, will not want to miss these important new revelations about an issue that affects us all.

ALSO COMING IN THE NATION

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YOU?

The Nobel Peace Prize Winner for 1949 says that our best hope for peace lies with the *people* of the world, not with their governments. Read his prescription for individual action toward world sanity in

THE PEOPLE MUST ACT
By Lord John Boyd Orr

YOUR GOVERNMENT?

The people's will to peace must be implemented by American actions along the lines of President Truman's "Point Four" program, says a former United Nations official. He suggests how it might be done in

WHAT POINT FOUR REALLY MEANS
By Bernard Mishkin

WORLD GOVERNMENT?

The H-Bomb, says a famous news analyst has ended war's role as the protector of national safety. While a power policy remains inevitable in the absence of world law, what steps can we take to bring us within hail of limited world government, the only sure guarantee of security?

FROM TWO WORLDS TO ONE
By Raymond Swing

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Dangerous Thoughts

A NEW WEEKLY "NATION" FEATURE

When a writer has slaved over a typewriter for years, and has finally achieved fame and success—why in the world would he want to become anonymous again?

There can be only one reason: *because he has something so urgent to say, and so unpalatable to the average commercial publication, that he must get it off his chest without inhibitions and with no concessions to prudence.*

THE NATION has granted anonymity to a group of the best-known writers in the country, and has invited them to blow off steam in its pages. The group includes three Pulitzer Prize winners, six novelists, ten authors of major book-club selections, four magazine and newspaper editors, seven top-ranking foreign correspondents, two Critics' Award dramatists, and two editors of leading book-publishing firms.

They may write individually or in collaboration, about anything they please, in any way they please. THE NATION ventures only one prediction about the outcome: these weekly pieces are bound to be something unique. Don't miss them.

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New Republic

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A Special Section on the Technical Facts of Atomic Energy

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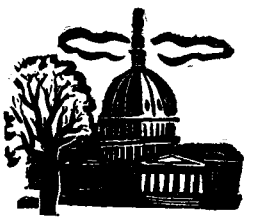
WASHINGTON WIRE

THE NATION is in safe hands. Election-year cookbooks have started to flow out from Congress. The legislature has ordered 1.5 million copies of the newly prepared, free, government-printed manual and has started them on their franked way. Last week Congress rejected the coöperative-housing aid for middle-income families as too "socialistic." Cheer up, you may not get a government-underwritten home loan, but you can still get free recipes for apple sauce.



The Labrador Current of Economy is striking the Gulf Stream of Defense Spending, and we should have fog and mist for a while. Sooner or later this was bound to happen; now it is here. The nation wants security, it wants farm support prices, it wants a lot of things that cost money; it also wants low taxes and a balanced budget and less Washington control. Somewhere something must give. The big new $29 billion consolidated appropriation bill cut Truman's budget estimates about five percent. But now comes General Eisenhower to point out the cost of the cut.

To many Congressmen cutting Marshall Plan and Point Four funds seems the easy way out. There is no instant-acting ECA lobby like the farm or veterans' lobbies. The difficulty for Congressmen is that the link between domestic security and international aid is firmly established today. Our forecast would be House cuts in ECA money now and, by the slow legislative process, Senate restoration of a good part of it later on.

Watching lumberjack Senator McCarthy agilely leap from log to log of his reckless charges of "Communism" and leave each stump just before it throws him, has been a fascinating show. Not in living memory has the Senate seen anything like it. How long can he do it? ask reporters. Now Democrats evince signs of coming out of initial shellshock and some responsible Republicans are dissociating themselves from the affair. Senator Smith (R, N. J.) defends the attacked Ambassador Jessup; Flanders (R, Vt.) speaks for Acheson. The imperturbable Mr. Acheson, meanwhile, at the other end of the Capital, wearing auburn mustache and butterfly-yellow bow tie, hides his real feelings.

If McCarthy can't make his charges stick, there is some talk of a Democratic motion of censure to accompany the Tydings committee's final report. Will the GOP finally identify itself with McCarthy? Already National Committee Chairman Guy Gabrielson and Senate whip Wherry are on his side.

Over the weekend the McCarthy spy drama had become farce. The respectable name of Owen Lattimore was out in the open. It was possible to render a verdict on the McCarthy episode: The Greatest Flop-eroo of All Time.

The jittery mood McCarthy has churned up is a positive fact, whatever the fate of his charges. Note this: The House is all set to pass the Mundt-Nixon anti-subversion bill; the FBI budget is boosted, with 700 more employees added and $4,000 more salary for J. Edgar Hoover; the House Un-American Activities Committee gets $150,000 more and is completing a "Bible" of alleged subversives; the Murray bill for on-the-spot firing of federal employees waits House approval; the Federal Court of Appeals votes 2-to-1 in the Dorothy Bailey case that a government employee can be branded as a loyalty suspect and fired without ever knowing the evidence against her or the persons who accuse her.

Judge Henry W. Edgerton cast the minority vote in the Bailey case (see page 13). Edgerton has long been our candidate for the next Supreme Court vacancy as the man who best exemplifies the Holmes-Brandeis tradition on the federal bench today. At one point in his dissent he lists questions that have been asked of employees against whom charges have been brought: "How do you explain the fact that you have an album of Paul Robeson records in your

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home?" "Do you ever entertain Negroes in your home?" Judge Edgerton says a record filed in his court shows that an accused employee "was taken to task for membership in Consumers Union and for favoring legislation against racial discrimination."

We don't know if Miss Bailey is guilty, but from the Edgerton dissent we learn that in her star-chamber interrogatory she was asked: "Did you ever write a letter to the Red Cross about the segregation of blood?"

The eight Democrats on the O'Mahoney Joint Committee on the Economic Report found last December's steel-price increases unreasonable; the six Republicans of the Taft minority found them okay. The steel industry is the great example in the American economy today of high prices put before wider markets, of that kind of rigidity which produces depressions. For those who see no difference between Democrats and Republicans, we suggest a study of this classic report. Even minority Senator Flanders agreed that the steel companies "have deplorable public relations and that many of their decisions are shortsighted." Incidentally, US Steel, which pleaded poverty, actually increased its profits 27 percent last year. It made more money while making less steel.

Notes. A recent *Saturday Evening Post* article, "The Federal Snoops Are After Me," told how an unhappy publisher was victimized by the government, which dubbed illegal his merry employment of children to fold papers after school for a "lark," for "cider, cookies" and a "little pin money." Looking up the records, the Labor Department found great-hearted Publisher McIlvane had hired children as young as 11, worked them as late as 11:30 p.m. and paid them as little as $1.25 for eight hours' work. Will the *SEP* publish a retraction? No. . . . We drop a tear for Harold Laski, the best teacher we ever had; some agreed, some disagreed with him, but no pupil ever passed out from his classes who was not, in some way, changed. . . . The State Department takes seriously the expected Soviet attempt to seize all Berlin in May; military counter precautions are being taken.

Washington T. R. B.

CORRESPONDENCE

Legal Logic

SIR: When your editorial writers discuss the new Mundt bill, I urge that they answer the following questions:

1. Why should any Communist register, since the penalty for obeying this law is greater than that for disobeying?

Note: The preamble to the bill defines the Communist Party as a conspiracy to overthrow the government. Part I then requires all Communists to register or go to prison for two years. However, the moment Communists do register, they are liable under Part II to ten years in prison for being part of a conspiracy. . . .

2. This law puts restrictions upon certain types of speech. Is it constitutional?

3. Can the application of this law be confined to Communists? For instance, if a clergyman discusses the hydrogen bomb or atomic control over the radio, and if he happens to express one thought also advanced by the Communist Party, under this law does he not expose himself to trial and imprisonment for not having identified his views as Communist? . . .

4. Will not this law make every American live in fear of expressing a thought or joining an organization that may be considered Communist or Communist-front? Will it not paralyze independence of thought in America?

5. How can the US represent democracy in action to the world if it persecutes and narrows the expression of political opinion here?

If this bill passes, a Pandora's box will have been opened in this land.

Los Angeles, Calif. JOHN T. MAYBERRY

The Mousetrap

SIR: In his article on "Liberal Cachexia" (the *NR*, March 6), Mr. David Goldknopf clarifies some basic concepts in the relations between the liberal and the extremists of the Right and Left. However, intentionally or unintentionally, he sidesteps a basic practical problem which confronts every liberal who . . . wants to be active politically. This problem is best illustrated by the pathetically helpless position in which the Progressive Party finds itself today.

The Progressives fooled themselves with the beautiful dream that all they had to do was adopt a positive program with appeal to those who were dissatisfied with both major parties and they wouldn't have to worry about having Communists among them. Not only weren't they going to be "mousetrapped" into an anti-Communist position, but they made it plain that Communists would be welcome if they wanted to support its platform. But what happened? . . . It is now common knowledge that non-Communists in positions of leadership in the Progressive Party found themselves at the mercy of a well-organized Communist bloc. . . .

Because unscrupulous reactionaries have made political careers out of denouncing Communists (real and fancied), the Communists have succeeded in selling many liberals the idea that there is something unprincipled about disavowing their support. Actually it is unprincipled *not* to disavow them if they get in the way of the liberals' political program.

The basic principle involved is that Communists *do not* have the same political goal as liberals. Keeping this vital point in mind, there is nothing unprincipled in a liberal organization's stating that it does not want to be associated with Communists. Communist name-calling notwithstanding, such a statement does not constitute Red-baiting.

Mr. Goldknopf's point that a liberal need not be embarrassed when he finds himself on the same side as the Communist or reactionary on some issue is valid only if a sharp distinction is made between parallel and joint action. . . . Joint action with the Communists does not serve the ends of liberalism. Recognition of this fact is not Red-baiting; it is common sense if the liberal is to survive in the battle between Left and Right.

Pittsfield, Mass. SAMUEL AND FREDA SASS

Abiogenetic and Eleemosynary

SIR: Your "Washington Wire" of February 27 comments as follows:

> The isolationists and economizers will attack the fund [the $3.1 billion ECA appropriation]. They are still blind to the slow, gradual deterioration of the global situation, which has reached the point already where almost anybody can see it is going to increase defense costs, raise foreign-aid expenditures, and almost certainly require higher taxes before long.

T. R. B. is completely and utterly mistaken as to the blindness of the "isolationists and economizers." They foresaw exactly this result in the days when the Truman Doctrine, with its abiogenetic, militaristic and eleemosynary concomitants, was dumped upon the backs of the American taxpayers.

Now the question is, "How much longer, Oh, Lord?" We protested at the inception of this fallacious doctrine that it should be carried out through the facilities of the United Nations as the only probable road to success; and we say now that to go on as we have been will result merely in throwing good money after bad. Secretary Acheson has lately, it seems to me, been trying to move this country into closer collaboration with the UN, but some willful and wrong-headed power behind the scenes is apparently thwarting his efforts.

Pueblo, Colo. VICTOR C. VANCE

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BREAKING THE ATOMIC DEADLOCK

THE PURPOSE of this article and the one which follows is to set down in an orderly, balanced fashion—and within a reasonable compass—the history of international negotiations on the atom bomb and atomic energy. These negotiations have proceeded fitfully over the past four years (more than once they have ground to a stop) and the reporting of them has been colored by passions often irrelevant and always obscuring. When exchanges in this long conversation attracted world attention, they usually did so, not because a useful suggestion had been made, but because one side or the other was seizing on a point that could be coined into propaganda. Quite naturally, but we believe quite improperly, the world has despaired that any agreement could be forthcoming.

The history of atomic discussion has been checkered, but by that very fact it has not been all negative. Points of agreement, hints of a desire to conciliate, evidence of sincerity and good faith, the elements of an adequate and acceptable compromise plan, do appear in the record. The trouble is that they have not been seized upon and developed. The purpose of our third article, to appear week after next, is to outline a new atomic code that, taking advantage of every scrap of positive accomplishment, may ultimately be shaped into an acceptable agreement. We do not pretend that we can sweep the difficulties aside, but we think we can show that none of them is insurmountable. On the assumption that the world really wants to put an end to the new and self-induced terror of atomic warfare, we believe that the way can be found.

One of the major difficulties of this subject is that the problem is technical as well as political—and the technical aspects involve not only several of the natural sciences and engineering, but economics and the military arts. In order to keep the political analysis from becoming an undigestible potpourri of technics and politics, we have employed the device of setting off the main technical considerations in brief form in a special section printed with this issue of the *New Republic*. It may be read separately, or referred to from time to time as points in the main articles suggest.

The Politics of the Atom—1945-1950

THE "BARUCH PLAN" has returned to the headlines after an absence of three years. The question is what to do with it—or rather, with the "Majority Plan" of the United Nations, which evolved from the Acheson-Lilienthal Report via the Baruch Plan. Does it apply to the situation presented by the unexpectedly early termination of the US monopoly of atomic bombs and the start of intensive efforts to develop a hydrogen superbomb?

Many American scientists, influential sections of the press and some members of Congress have thought not, and have urged a new Presidential Commission to examine the problem. Similar opinions have been voiced in Great Britain. Senator Tydings thinks atomic control ought to be broadened to include all armaments down to the rifle. Senator McMahon suggests that the Baruch Plan is structurally sound, but needs to be made more salable to the Russians by an expanded Marshall Plan. The Administration, while maintaining that ours is the only adequate proposal thus far advanced, appears willing to entertain suggestions for a workable substitute. The Russians, still insisting that they will not accept at least two of the plan's principal features, denounce it as a Machiavellian device designed either to ensure their rejection of it and thus place them at a political disadvantage or, if they should accept, to subjugate them to the unfriendly majority of an international commission.

In this babble, as in most political debates, it is hard to discover what is being debated. If the Baruch control plan, as amended by the UN, is still valid, what, specifically, are its merits? If it is inadequate, what are its defects? Unfortunately there are no published works to which the average citizen or Congressman can turn to get a fairly short and simple account of what the Baruch Plan was, the technical, economic, military and political assumptions on which it was based, and what has happened to it in the United Nations. This is a curious situation in view of the millions of words that have been

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This is the first of three articles prepared by the editors of the New Republic, *dealing with the greatest single issue of our times: international agreement on atomic energy. The second article, to be published next week, will conclude the recital of the facts about attempts to obtain international agreement through the UN.*

Published with this issue of the New Republic *is a special section giving essential facts about weapons involving atomic explosions.*

—THE EDITORS

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written and spoken on the subject, and the fact that, unlike most issues and episodes of comparable importance in world history, the political source materials on these developments have been made public with little or no delay.

The first two of these articles, then, are an attempt to describe the evolution of the Majority Plan of the United Nations Atomic Energy Commission, the somewhat misleading designation given to the partially completed work of the UNAEC as represented by its *First* and *Second Reports* of 1946 and 1947.

I. The Baruch Plan

President Truman and Prime Ministers Attlee and King, disturbed and prodded by the scientists, made a proposal to prevent the use of atomic energy for war and to extend its use for peaceful purposes. This was adopted in Moscow by Messrs. Byrnes, Bevin and Molotov. The General Assembly then gave a mandate to the Atomic Energy Commission to report to the Security Council, undertaking what Messrs. Truman, Attlee and King had proposed.

In the meantime the Smyth Report* had been issued and the State Department Board of Consultants had released the Acheson-Lilienthal Report.

It was at that time that I became American delegate on the Atomic Energy Commission. You can see, I did not have a clean piece of paper on which to write our proposals, which proposals had to be in keeping with those promises. With all this in view, I made the report as I did. . . .

We made a generous and just offer, with restrictions that would safeguard matters as well as we could, in view of the promises that had previously been made by the President and Messrs. Attlee and King, and the limited control of the Acheson-Lilienthal proposals.

Thus Bernard Baruch wrote to Representative Vorys of Ohio in January, 1947, a few weeks after his resignation as American delegate to the UN Atomic Energy Commission. The same complaint might well have been made by the Lilienthal Board and by the UN Atomic Energy Commission. They too did not have a clean piece of paper on which to write. Each was constrained to add a new interpretation or a new emphasis to what had gone before—and the end result was the Majority Plan of September, 1947.

Let us trace its development.

The Truman-Attlee-King Declaration—inspection and stages.[1] This declaration by the heads of state, issued November 15, 1945, was of historical significance in putting forward international control as the goal of US, British and Canadian foreign policy. It was also the origin of two principal features of the American and Majority plans, features retained to this day—international inspection and graduated transition stages to the ultimate control system.

We shall return to analyze the inspection provision in detail; for the moment it will suffice to note that inspection—of some kind—is an element in every control convention thus far proposed, including the Russian. Transition stages, which turned out to be a peculiarly vexing issue, deserve some immediate comment.

What was intended was a probationary period for the Soviet Union, in order to determine whether international inspection would work and be respected behind the Iron Curtain, before US "secrets" were entirely revealed and bomb stockpiles relinquished. It was not, as things turned out, a happy idea, nor was it a new one. France had suggested a similar probationary period for Germany in the League of Nations disarmament discussions in 1933; the historian doubtless can find other examples.[2] As was evident from the outset, probation would have been acceptable to the Russians, if at all, only in the event that the American atomic monopoly was reasonably certain to endure for a considerable period—10 to 15 years at least.

As to this prospect President Truman had unfortunate advice. For at least two of the experts participating in the discussions preparatory to the Truman-Attlee-King statement—Major General Leslie R. Groves and Dr. Vannevar Bush—proffered reassurances that were ill-founded.

Groves's interpretation was aired in testimony before the Senate Special Committee on Atomic Energy:

> One nation [meaning Russia] could catch up and produce a bomb, if they did it in complete secrecy, probably within 15 to 20 years—more likely the latter. If they did it without secrecy and with a great deal of help from the United States and from England and Switzerland—and I say Switzerland because she is a manufacturer of precision machinery—it could be done in five to seven years, probably seven.[3]

Dr. Bush, speaking to the New York *Herald Tribune* Forum on October 31, two weeks before the Truman-Attlee-King conference began, spoke of the "five to fifteen years which other nations must have if they are to make atomic bombs of their own."[4]

On the strength of such opinions, the joint declaration announced a principle that was to be a source of trouble as well as embarrassment. It was politically unfeasible from the start; it became a barrier to agreement on other important issues; it was transformed into an anachronism when the Russians set off their first atomic explosion.

> The American proposal [wrote Walter Lippmann in September, 1949] insisted on the retention of the winning weapon until the US was satisfied that atomic development, which was supposed not to be far advanced in Russia, had been brought under truly effective and enforceable interna-

*Baruch appears to have forgotten that the Smyth Report was released on August 16, 1945.

[1] Footnotes giving source references appear at the end of article.

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tional control. . . . The Russians were unwilling to pay the price we set for sharing our monopoly and they chose instead to attempt to break the monopoly.[5]

With a misplaced faith in "secrets" (and Russian technical "incompetence"), we misjudged the situation and set the negotiation price too high; this is not to say that if the price had been lower the Russians would have paid it.

The Acheson-Lilienthal Report—international ownership and the "strategic balance."[6] The next major development in atomic politics was the issuance of the Lilienthal Report on March 16, 1946.* This now celebrated document was the joint product of an Advisory Board (of which the physicist J. Robert Oppenheimer was perhaps the most persuasive member) appointed by a State Department committee headed by Dean Acheson, then Undersecretary. The Report embodied and elaborated the ideas of international inspection and transition stages established as policy four months earlier in the Truman-Attlee-King declaration.[7] But it introduced two new concepts, international ownership and "strategic balance," the first of which considerably modified the scope of international inspection, and the second of which was apparently devised to meet some of the difficulties created by the first. International ownership and management of the atomic-power industry was to be the main safeguard against the diversion of fissionable material from legal, or declared, production facilities. Inspection was charged with the function of guarding against other secret and illegal, or so-called "clandestine," activities. The internationally owned plants were to be allocated on an atomic-balance-of-power basis.

Given the basic premise, which the board and the committee apparently did not question, that electric power from atomic reactors was technically feasible, economically sound and practically "right around the corner," this scheme had considerable appeal. It partly offset the stiff price demanded of the Russians in the form of transition stages, by offering them assistance in the earlier achievement of a tangible economic benefit—increased electric-power resources. The development of an atomic-power industry, as a positive and constructive function, would attract and hold more capable personnel than mere inspection; furthermore, the operation of the industry under international management would, it was argued, minimize the possibility of secret diversion of atomic materials. Similar suggestions had been put forth in the League of Nations some 15 years earlier with respect to controlling the war potential of the chemical industry and the civil-aviation industry.[8]

*It should perhaps be noted that the Russians, at the Moscow Conference in December, 1945, had agreed to join in sponsoring a United Nations Commission to consider the problem of atomic control; and that the establishment of such a commission was authorized by unanimous vote of the UN General Assembly, January 24, 1946.

It soon became apparent, however, as Oppenheimer regretfully observed in January, 1948, that the prospects of atomic power were too remote and uncertain to make the benefits of the plan sufficiently attractive to the Russians.[9]

Moreover, neither the Lilienthal Board nor the Acheson Committee had given much practical attention to the problem of how to divide up, geographically and strategically, a large atomic-power industry in which the physical installations would have to be located in national territories and would be annually producing large quantities of plutonium, the vital ingredient for bombs.[10] Their formal solution was the "strategic balance"—to distribute the power and plutonium-producing reactors so that any nation turned aggressor would be able to seize only a small share of the world's total plutonium-production facilities. Unfortunately, the solution, which would be difficult to apply under any circumstances, falls to pieces as a working measure in the divided world of today. The agreed balance of major naval units—the 5-5-3 ratio—of the Washington Treaty of 1921, was possible only because Britain, Japan and the US were all thereby assured of defensive superiority in their vital waters; but potential atomic-bomb production lends itself to no such approach.

The Baruch Plan—punitive sanctions and the "veto" question. Baruch, as shown by his letter to Representative Vorys, had an essential distaste for the policies of the Acheson-Lilienthal Report. It was not merely that the report reduced him to the role of spokesman rather than statesman; Baruch apparently doubted that US security would be strengthened by the control of atomic weapons—the only effective counter-agent to the Red Army in Europe and Asia, short of our maintaining a large standing ground and air force and a continuing state of near-mobilization. But instead of flatly proposing that the plan be broadened to include other forms of disarmament, which he was perhaps at first tempted to do, he undertook to strengthen the "limited control" of the Acheson-Lilienthal plan by adding his own provision for punitive sanctions.

Sanctions were to be invoked against a violator of the control treaty by majority vote of the United Nations Security Council and were not to be subject to the Great Power veto established in the Charter. As anyone with an elementary understanding of the dynamics of the UN would have understood, a proposal to abolish the veto—even in atomic matters—was doomed to failure. Moreover, how the suspension of the veto would meet the threat of the Red Army was never clear, except possibly on the longheaded reasoning that, since the proposal would stifle further negotiations and, at the least, defer the establishment of international control, the US would be able for some time to

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retain its "winning weapon." The sanctions provision was the sole substantive contribution of Baruch and his advisers to the plan which he put before the UNAEC; the remaining features were derived from the Acheson-Lilienthal Report.

Though officially adopted, the inclusion of the provision on sanctions was regarded with misgivings even in high Administration circles. The Lilienthal Board and the Acheson Committee had examined the question of sanctions and had come to the conclusion that they were on the whole impractical and unnecessary. All that could be expected of the control system was that it would give adequate warning of serious violation of the treaty. If Russia were the violator, for example, Great Britain, the Dominions and the United States—and perhaps a few other countries—would take appropriate action, which might mean war or the threat of war. But a majority vote of the Security Council to impose sanctions on Russia would be of little value in bringing other countries into the coalition against Russia. Altogether, sanctions might be expected to be as effective an instrument against a determined aggressor as an injunction in putting down a rebellion.

Acheson, who disapproved of the provision, carried his objections to the top. Chester I. Barnard, a member of the Advisory Board, has related how he and Lilienthal went to Baruch and begged him to drop sanctions from his presentation to the United Nations in June, 1946, lest it give the Russians an issue on which to "dance up and down indefinitely."[11] These and other efforts failed to dissuade either Baruch or Secretary of State Byrnes.

This, briefly, was the background of the US plan so dramatically delivered to the UN by Baruch on June 14, 1946. It was neither a diabolically clever political booby-trap set for the Russians, as P. M. S. Blackett was the first to contend,[12] nor did it comprise the generous, all-wise solution the US press and official spokesmen claimed for it. It was a conglomerate affair, reflecting the diverse opinions of the many who had contributed to it; it was uncertain as they were uncertain, as the nation they represented was uncertain. It contained internal contradictions, which Oppenheimer has pointed out[13]; and it was based upon several questionable assumptions, including those of a relatively long American monopoly of the atomic bomb and a relatively short waiting period for atomic power on a significant economic scale. These shortcomings were conceptual as well as political; they made the plan unacceptable as a whole and they made it unreal. All this apart from the sincerity of Russian intentions.

The Russian proposal of June, 1946. Five days after Baruch's speech, Gromyko made reply. The Soviet counter-proposal of June 19, 1946, now merits no more than passing comment, since its central theme—prohibition of atomic weapons as a condition *precedent* to an international control system—was substantially modified in the fall of 1948 when Vishinsky, addressing the UN Assembly, advocated *simultaneous* prohibition and control.

The initial Russian "plan" was largely a stall for time, a fact recognizable even in June, 1946. Soviet policy apparently called for adoption of an extreme position on transition stages so as to allow for bargaining and compromises if these were later thought necessary or desirable. Comparison with the Soviet draft conventions on disarmament which had been presented to the League of Nations almost two decades earlier suggests that these old drafts were exhumed and modified to suit the new occasion.[14]

At any rate it was clear that the Soviets were not yet prepared to talk.

II. The United Nations Discussion

The Atomic Energy Commission in 1946—the Baruch period. Although the deliberations of the UN Atomic Energy Commission received much more public attention during its first year than they have since, 1946 was not a year of accomplishment. The lack of progress, the failure even to come to grips with issues, much less to settle them, took its toll of world opinion. While the Cold War fed and grew on other disputes, the hope of achieving atomic control slowly withered. For the first three or four months, the Russians showed no willingness to negotiate; they were, we may now conjecture, perhaps trying to form a better estimate of how long it would take them to make bombs of their own. During the summer they argued at length about sanctions, thus fulfilling Chester Barnard's prediction; but they also declared themselves opposed to an international control commission and to inspection. In a statement, much quoted since, Gromyko declared the US proposals unacceptable "as a whole or in their separate parts."[15] In the fall the Russians were relieved of the necessity even of temporizing by merely taking a hand in the somewhat superficial, nonquantitative examination of certain scientific and technical matters* in two of the subsidiary committees of the Commission.

One of the first indications of change in the completely negative Russian stand appeared—as is typical of the USSR—in the press. On October 28, 1946, Stalin answered a list of questions submitted by Hugh Baillie of the United Press: the gist of his comment was an endorsement of the principle of "strict" international control of atomic energy. One day later, in the UN Assembly, came what was presumably the

*For example, the diversion of fissionable materials at various stages in the production process.

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follow-up: Molotov proposed a general limitation on all armaments. The immediate UN reaction was favorable; but, as they later disclosed, Secretary Byrnes and Baruch construed Molotov's proposal as a political maneuver to wrest leadership from the United States, to embroil and confuse the plan for atomic controls with the general disarmament issue, and, possibly, to force the United States into a position in which it would have to reveal its rate of bomb production or be embarrassed by its refusal to do so.[16]

Some or all of these considerations may have played a part in shaping Molotov's proposal. But the ensuing Assembly debates and parliamentary turns, including Russian acceptance of an American draft as the basis for discussion and amendment, suggested at least one other objective. This was the Soviets' desire to change their position on inspection, without appearing directly to reverse themselves on atomic-energy controls. If general disarmament were to be considered on their initiative, they wished to be in a position to claim that they had always favored inspection. Indeed, they made this claim later on.

What followed tended to corroborate this appraisal of Russian intentions. On December 14 the Assembly, by unanimous vote, passed a resolution of general disarmament. Its value to the progress of atomic negotiations lay in the fact that the Russians therein agreed in principle to international inspection and to the proposal of an international atomic-energy-control commission, some of whose decisions, at least, were to be determined by majority vote.[17] The US delegation, it is worth noting, did not insist upon the elimination of the veto as regards sanctions for violations of a general disarmament treaty.[18]

Encouraged by these indications of a Russian shift, a middle group, consisting of the Dutch, French, Australian and Canadian delegations in the UNAEC, began moving in November toward a compromise plan. It would have limited international ownership and management to plants in which the final steps of production were executed (reactors, and isotope-separation plants, if any) and relied on international inspection to monitor installations connected with the earlier steps (mines, refineries, etc.). The same group also tried to water down or eliminate Baruch's proposal on the veto.

Meanwhile, Baruch had decided on a showdown.[19] Early in December he insisted that the UNAEC, by the end of the month, produce a report which would endorse, in summary form, all the essential features of the US plan, regardless of the fact that very few of them had yet been considered in detail. This peremptory demand raised a storm—small, but significant none the less as a clue to latent unrest and uneasiness. The opposition was led by the Canadian delegate, General McNaughton, a military man of some independence who had no taste for submitting to pressure from any source. But Baruch had his way. On December 30 a solid majority vote—the Soviet and Polish delegates abstaining—was won for all of his demands, including some extraordinarily vague language on suspension of the "veto."[20] As the London *Economist* observed:

> The hesitation of several members of the Atomic Energy Commission were in the end overriden by Mr. Baruch's uncompromising attitude, which led him to state that the United States "would—and should—withdraw their support from this organization," if his plans were to be rejected.[21]

Though Baruch had gained a formal endorsement of his demands, it turned out on closer examination that while appearing to save his solitary original contribution—sanctions—he had permitted international ownership and management to be substantially diluted and in fact replaced, at many points in the production chain, by simple inspection. (This may be seen in the recommendations in Part V of the *First Report*.[22]) The middle group, to be sure, had been routed, but it was an empty victory for Baruch. He had antagonized some of the more influential delegates (especially by his insistence on eliminating the Security Council veto); he had forced the adoption of general propositions which no one had thought through and which had no chance of acceptance. As for the sanctions provision itself, it was never thenceforward taken seriously or further elaborated.

The UNAEC in 1947, the crucial year. Early in January, 1947, Secretary Byrnes resigned from the State Department, Baruch and his team of advisers from the Atomic Energy Commission. General George C. Marshall was appointed Secretary of State; Senator Warren R. Austin US delegate to the United Nations; and, after some delay, Frederick H. Osborn was designated the top American negotiator on the UNAEC. It soon became apparent that the new American delegation had decided, if necessary, to slide out of the Baruch proposals on the veto and sanctions; to hold out for the remainder of the Acheson-Lilienthal Report; and to keep general arms limitations in an entirely separate compartment, the Conventional Armaments Commission.[23] Austin, in a speech in January, 1947, suggested various means by which the veto problem could be avoided.[24]

For the moment the non-Russian delegates indulged themselves in a respite of cautious optimism. President Truman had changed pilots; there was a new Secretary of State; Senator Austin was a moderate and reasonable man, seeking peace and deeply attached to the principles of the UN. It was felt that a compromise might be possible whereby the Russians would accept the American proposals, except for sanctions and certain adjustments as to stages. The Soviet delegation had submitted

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a few amendments to the *First Report* on February 18, 1947, which looked, at first glance, to be more innocuous than they later proved to be.[25] But Gromyko put an end to the general air of hopefulness in what was for him—a mild man—a thundering speech in the Security Council on March 5. It was a blend of truth and falsehood delivered in extravagantly abusive terms, a kind of diplomatic fishwifery that seems for a time to have been a Russian specialty, if not monopoly. Behind the strong language was a clear indication that the Russians were not then prepared to go beyond some weak form of international inspection; that international ownership and management was unacceptable to them because they feared being outvoted on the international commission; that the strategic balance could not be left to the vote of such a commission; and that any elaborate scheme of transition stages was out of the question. Whatever form of international control was agreed to would, Gromyko insisted, have to be applied to all stages of the production process at about the same time.

His general position was reaffirmed in detail in another set of formal Russian proposals, obviously drafted in Moscow, and presented to the Commission on June 11, 1947.[26] These called for the establishment of an international control commission, periodic international inspection of declared atomic-production facilities, the simultaneous application of controls to all stages of the atomic-production process, special investigations on suspicion of violations, and atomic research to be conducted both by the international commission and in national laboratories. Although still incomplete and unsatisfactory, this began to look more like a consistent and rational bundle of proposals; had it been offered a year earlier, it might have constituted a promising basis for negotiations, but at this point it merely exasperated the majority. With the issues thus on the way to clarification, if no closer to resolution, the UNAEC resumed negotiations. But now a strange unreality brooded over its deliberations.

The discussions in the Commission from April to September of 1947, the period of the most intensive work in its history, proceeded along two essentially separate lines. One was concerned with the Soviet amendments and proposals of February and June, 1947; in the other several working groups recast and elaborated the Majority Plan, especially with respect to inspection, international ownership and management, and research. By design, the two lines were kept apart. The majority voted an agenda[27] on April 10, 1947, which divided the work of the Commission into two categories of topics—the "technical" questions of inspection, international ownership and management, and research; and the "political" questions of transition stages, strategic balance and sanctions. The political questions, according to the majority, were incapable of useful discussion until the technical questions were unanimously agreed upon,[28] and several Russian requests for discussion of the political questions, especially on transition stages and the strategic balance (or national quotas) were turned down, ignored, or evaded.[29]

The strategy adopted by the majority is plainly exhibited in the record. Its aim was to force the Russians to accept the majority's requirements with respect to inspection and international ownership. Nothing less would do. If the Soviet Union complied, this would be a token of sincerity, since compliance would necessarily "raise the Iron Curtain." If it refused, there was little use in prolonging the negotiations. It was not considered necessary or advisable to bargain for Soviet concessions by offering concessions on stages, quotas or sanctions. Led by the US, the majority was now bent on being firm; in other quarters away from Lake Success, the more virile word "tough" was increasingly heard.

It was not a new line and it bespoke more resolve than reason. Based on the assumption, among others, that the American atomic monopoly had four to 10 more years to run,[30] it reflected, as much as it contributed to, the general deterioration of Soviet-American relations. The Truman Doctrine was launched that spring. The Marshall Plan was proposed in June and turned down by the Russians; under their pressure, the satellite nations soon followed suit. Moreover, other persons were beginning to wonder, with Baruch, whether control of the atom without control of the Red Army afforded any real security. The best course, the American negotiators seemed to believe, was (1) strive for international control; (2) make no concessions; (3) build as many atom bombs as possible. Possible contradictions in this course seem not to have occurred to the makers of policy.

The chief American negotiator, while not the originator of the policy of firmness, was second to none in his devotion to it. Osborn seemed convinced, as he said later in a speech, that all the Soviet counter-proposals were "pure hypocrisy, an attempt to mislead public opinion rather than to reach a solution."[31] He indicated as much in the negotiations. In opposing a Soviet request to merge the discussion in which the Majority Plan was being elaborated with the discussions on the Soviet proposals, in order to find common ground, he observed:

> If we mix the discussion of these two unified, separate schemes into one discussion, we will be in danger of producing a sort of hybrid which will have the advantage of neither one scheme nor the other. It is well known that hybrids are sterile, and this particular hybrid would have no pride of parentage and could no longer have any hope of posterity. . . . Whatever the intent of the representative of the USSR, the fact remains, if we should turn to Committee 2* with

*The committee in which the Majority Plan was being discussed.

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these proposals of the USSR, it would to a great extent stop us from serious deliberation, discussion and informed amendment of these papers. . . .[32]

What constructive object Osborn hoped to achieve by this method is difficult to perceive.

When one now looks over the voluminous Commission records of that spring and summer, it seems fairly clear that Gromyko was not indifferent to possible compromises and to bargaining. Osborn himself later noted that:

The proposal of June 11, 1947, was so evidently inadequate that it was difficult to spend time debating it. Gromyko, however, appeared hurt and angry that his government's plan was so badly received. From that time on, his public addresses became increasingly bitter.[33]

Whether in fact compromise could have been achieved, or whether it would have been wise for the majority to accept a compromise system confined to atomic disarmament, leaving other weapons uncontrolled, is altogether doubtful.

In July, 1947, the meetings of the various committees of the Atomic Energy Commission were thrown open to the public. From then on, the UNAEC was no longer primarily an instrument of negotiation, but rather a forum for influencing world opinion for and against the Majority Plan.

The result of the work of that spring and summer was the *Second Report* of the Atomic Energy Commission, approved by a solid non-Communist majority vote on September 11, 1947. This time the USSR cast a negative vote, but Poland still abstained.[34] Since this document is the Commission's last substantive accomplishment, setting forth the greater part of the so-called "Majority Plan"—which the United Nations Assembly was asked to approve and did approve in the fall of 1948—its contents deserve careful scrutiny. This will also be a convenient point to summarize the differences between the majority and minority blocs (differences which essentially remain) and to note the modifications of the original proposals presented by Baruch 15 months earlier. These matters will be discussed in our next issue.

Footnotes

[1]Text of the declaration may be found in the US State Department Publication No. 2702, *Growth of a Policy*, p. 118. This publication, and its successor, *Policy at the Crossroads* (Publication No. 3161), contain an abbreviated record of atomic control developments from August 6, 1945, to May 17, 1948, and the texts, or partial texts, of many of the pertinent official documents.

[2]League of Nations, General Conference for the Reduction and Limitation of Armaments, Geneva, Conference Documents (1933, pp. 472–476, 744–770).

[3]Hearings before the Special Committee on Atomic Energy, US Senate, 79th Congress, 1st Session, Pursuant to S. Res. 179, Part I, p. 62 (29 November, 1945). It is clear from General Groves's testimony that the "help" of which he spoke was in the fabrication of machinery, rather than scientific or even engineering "secrets." Thus it was not the betrayals of Allen Nunn May, or Karl Fuchs, or of others, perhaps yet undiscovered, which enabled the Russians to produce an atomic bomb by 1949; but their ability to make in four years the machinery and equipment that General Groves thought would require 15 or 20.

[4]New York *Herald Tribune*, November 1, 1945.

[5]New York *Herald Tribune*, September 29, 1949.

[6]*A Report on the International Control of Atomic Energy*, March 16, 1946; US Department of State Publication No. 2498.

[7]There is reason to believe, however, that the Lilienthal Board of Consultants prepared the final chapter on transition stages with some reluctance and only at the insistence of the Acheson committee.

[8]De Madariaga, *Disarmament*, London, 1929, pp. 193–194; League of Nations, General Conference for the Reduction and Limitation of Armaments, Geneva, Conference Document D. 56 (Feb. 5, 1932).

[9]J. R. Oppenheimer, "The International Control of Atomic Energy," *Foreign Affairs*, January, 1948 (also reprinted in the *Bulletin of the Atomic Scientists*, February, 1948).

[10]For the relationship of atomic power to plutonium production, in further detail, see "Relation between Atomic Power and Bomb Production," p. 5 of Technical Handbook.

[11]Chester I. Barnard, "Atomic Energy Control," *Dartmouth Alumni Magazine*, February, 1948.

[12]P. M. S. Blackett, *Fear, War and the Bomb*; New York, 1949, p. 158.

[13]Oppenheimer, *op. cit.*

[14]Draft conventions submitted by the Soviet government in 1928 and 1932, documents C. 667 M. 225 and D. 87, respectively.

[15]AEC/WC/3, p. 6. (Hereafter the mimeographed documents of the United Nations will be referred to by document number only. The first letter or letters in the document code refer to the UN agency originating the document: A—Assembly; S—Security Council, AEC—Atomic Energy Commission. Subsequent letters indicate the subsidiary committees and the type of document. Thus AEC/WC/PV/3, for example, is the verbatim transcript No. 3 of the Working Committee of the Atomic Energy Commission.)

[16]James F. Byrnes, *Speaking Frankly*, New York, 1947, p. 273; B. M. Baruch, letter to Representative Vorys, January 27, 1947.

[17]*Cf.* Molotov's statement: "The rule of unanimity in the Security Council had nothing to do with the work of the control commissions. Therefore it was incorrect to say that a permanent member with its 'veto' could prevent the implementation of a control system. Any attempt to prevent an inspection would constitute a violation of the Security Council's decision." *The Journal of the United Nations*, No. 51, Supplement No. 1-A/C 1/114, pp. 259–60.

[18]UN Assembly Resolution of December 14, 1946, "Principles Governing the General Regulation and Reduction of Armaments."

[19]Byrnes: *op. cit.*, p. 271; Baruch letter to Representative Vorys.

[20]AEC/C.1/9 with appendices, AEC/WC/PV/5 (both mimeo); and AEC, Official Record No. 10, 1946 (printed).

[21]"Atomic Energy and Disarmament," the *Economist* (London), January 4, 1947, p. 8.

[22]*The First Report of the Atomic Energy Commission to the Security Council*, Part V, *First Report* on Safeguards.

[23]Space does not permit extended discussion of the proceedings of the Commission for Conventional Armaments, which was set up as a result of the unanimous General Assembly Resolution of December 14, 1946, and began work in March, 1947. It may be noted, however, that the US and British position was to insist that conventional armaments could not be and should not be limited and controlled until "an atmosphere of international confidence and security" had been established, which atmosphere would be demonstrated by the occurrence of three events: (a) the adoption of a set of agreements, covering the contribution by each nation to the armed forces of the UN (pursuant to the now almost forgotten provisions of Article 43 of the Charter); (b) the signing of a treaty for the control of atomic energy; and (c) peace treaties with Germany and Japan. The Soviet position seemed to favor going ahead with discussion of the principles which would form the basis of a treaty or treaties to reduce and limit armed forces, armaments, and armaments-production capacity, with a system of control and verification, and a tie-in with atomic-energy control. The majority of the Commission and the Soviet-bloc minority have been deadlocked from the first; but because of their insistence on the three prior conditions mentioned above, the majority did not in this case proceed, as it did in the UNAEC, to formulate its own proposals in further detail (S/C.3/27).

[24]"Our States and the Opportunity for Peace and Security," by the Hon. Warren R. Austin, an address to the Council of State Governments, January 16, 1947, reprinted in the *Bulletin of the Atomic Scientists*, February, 1947. Senator Austin later stated, in the 1948 Assembly debate, that if other points of disagreement could be settled, the question of the veto could, in all probability, be easily resolved. A/C.1/S.R./162, p. 4 (October 18, 1948).

[25]Official Records of the Security Council, Second Year, No. 15, Supplement No. 7, Annex 16. (Also reprinted in the *Second Report* of the UN Atomic Energy Commission to the Security Council, p. 74 *ff.*)

[26]March 5 speech, Official Records of the Security Council, Second Year, No. 22; the Soviet June proposals are reprinted in the *Second Report* of the UNAEC, p. 88 *ff.*

[27]Document AEC/C.2/16, reprinted in the *Second Report* of the UNAEC, pp. 6–8, and therein first made public. The original draft of this agenda, submitted by the US delegation, was dated March 25, 1947 (document AEC/C.1/13).

[28]*Second Report* of the UNAEC, p. 3.

[29]AEC/C.1/P.V. 10, pp. 53–55; AEC/C.1./P.V./27, pp. 51–70.

[30]*Report of the President's Advisory Committee on Universal Training*, Washington, May 29, 1947, p. 8.

[31]Speech at Wellesley, Mass., July 1, 1948, reprinted in State Department Publication No. 3272, p. 25.

[32]AEC/C.1/P.V./19, pp. 26–67.

[33]Frederick H. Osborn, "The Search for Atomic Control," *Atlantic Monthly*, April, 1948, p. 50.

[34]AEC, Official Records, Second Year, No. 4.

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THE WEEK

ONLY TWELVE FOR FREEDOM

Martin Dies first lit the torch of intolerance in the Un-American Activities Committee. John E. Rankin raised it high. J. B. Matthews bore it blazing around the nation. J. Parnell Thomas carried it to his new residence, a prison farm near Danbury, Connecticut. The committee spent $1.5 million, violated all the rules of decent investigating procedure, smeared countless innocent citizens, and in all its nine years it produced just one case strong enough to take to court, and that case was already before a grand jury when the committee "disclosed" it.

The professional patriots and the common carriers of hysteria supported the committee, of course. So, with various rationalizations, did the timid and the self-seeking. A small band of Congressmen stood out against its methods. The decline in the size of the opposition is as good a measure as any of the decline in this country's capacity for righteous indignation.

Ninety-four Congressmen voted against continuing the committee in 1943. One hundred and eighty-six voted against making it permanent in 1946. Thirty-seven voted against increasing its appropriation in 1948.

Last week the committee asked for a preliminary appropriation of $150,000, principally for the purpose of compiling a list of "250,000 individuals as well as several thousand organizations" which will be "a Bible of subversive activities in the United States."

It must be obvious that such a list goes far beyond the Communist Party —and the Fascist groups which have barely concerned the committee. Yet 348 members of Congress sanctioned this witch hunt. They included some of the best-known liberals in Congress, elected by labor and liberal organizations in order that they might stand up and fight. Instead, they ran for cover.

Just 12 Representatives stood up and were counted against the Un-American Activities Committee. They were: John A. Blatnik (D, Minn.), Earl Chudoff (D, Pa.), Isidore Dollinger (D, N. Y.), Helen Gahagan Douglas (D, Calif.), William J. Green Jr. (D, Pa.), Jacob K. Javits (R, N. Y.), Arthur G. Klein (D, N. Y.), Vito Marcantonio (ALP, N. Y.), Hugh B. Mitchell (D, Wash.), Barratt O'Hara (D, Ill.), Adam Clayton Powell Jr. (D, N. Y.) and Roy W. Wier (F-L-D, Minn.).

MIDDLE HOUSING'S DEATH

There will be no expansion of the federal housing program in the coming year. In voting to kill the Administration's proposal to stimulate home building for middle-income families through loans to coöperatives, Congress has cost the country at least 120,000 new homes and perhaps 250,000 new job opportunities resulting from their construction.

Lack of public support for more housing was to blame for Congress' action. There was an abundance of pressure on almost every Congressman from real-estate boards and others against the coöperative plan. Although every national veterans' organization and other such powerful groups as the CIO and AFL officially favored the program and lobbied for it, pressure from back home *for* the middle-income program was scarcely felt in Congressional offices. In the absence of grass-roots interest, and with the thought of the coming election campaigns in mind, many a moderate Representative in both parties decided to follow the wishes of the very vocal opponents of the program.

The coöperative scheme is the only new idea on housing the Truman Administration has produced. The bills offered to the Senate and the House during this month would have permitted only a demonstration of the coöperative principle in cutting the cost of home-owning for the middle group of Americans. But had the co-op plan been started, it might have expanded rapidly. In final desperate moves to wring something constructive from a reluctant Congress, floor leaders for the legislation reduced their original requests to the barest minimum. Representative Wright Patman (D, Tex.), for the sponsors of the plan, even agreed to raise the interest rate on co-op loans from the first proposal of 3⅛ percent to four percent and to chop the authorized amount for loans from $2 billion to $500 million over two years. The private builders were afraid to let the public compare their costly operations with the results of even a limited co-op demonstration.

All the old tricks of the real-estate lobby were used in the campaign against co-op housing, in tougher style. The 50-odd big-city Republicans who have voted with the Democrats on several important occasions in this Congress received a special dose of pressure to make certain they would stray no more. Philadelphia Republicans, for instance, were reminded that the final date for filing for the 1950 Congressional elections in Pennsylvania was March 27; the vote on co-op housing was taken on March 22; those of the delegation who proved "unfriendly," the real-estate lobby threatened, could expect opposition in their primaries.

The Administration did not fight for the heart of its housing program. Officials of the National Housing and Home Finance Agency sat supinely in the House gallery while lobbyists for the public-interest groups tried to do the organizing of Congressional support that should have been done by the agency. The President has frequently lamented the inadequacies of his Housing Agency staff, but he has not replaced them, and in this crucial legislative test of a major plank in his platform failed even to assign his own men to check up on the job Raymond Foley was supposed to do. Majority Leader John McCormack (Mass.), Majority Whip Percy Priest (Tenn.) and Speaker Sam Rayburn (Tex.) all let it be known that they opposed the plan for middle-income housing. For appearances' sake, however, McCormack played his usual part on the floor, excoriating the Republican leadership for obstructing progressive policies.

The weakly worded telegram Presi-

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dent Truman sent to Representative Brent Spence (Ky.) as a last-minute boost for the legislation did not meet the need for leadership in the House. Had he been well informed of the developing situation, the President would surely have been more emphatic.

The record of the Democrats on the roll-call vote leaves no question about the relative merits of the two parties with regard to housing policy, however. One hundred and thirty-seven Republicans and 81 Democrats combined to defeat the co-op plan. Only 14 Republicans joined the 140 Democrats and Marcantonio (ALP) for middle-income housing.

Those in President Truman's political corner have already begun explaining to him the Administration's share of the responsibility for the defeat of housing this year. They will insist that, before he begins any electioneering for the fall elections, a new housing program and a new bill must be devised as basic documents for the campaign.

PRESSURE FOR MUNDT-NIXON

Congressional pressure is mounting to force the Administration to consider the Mundt-Nixon Communist-control bill this session. The Senate Judiciary Committee, which recently reported out the measure, is now urging prompt passage. In a report explaining the bill, the committee said that Congress will be "myopic" if it tries to "resist Communist aggression abroad and ignores its clear and present danger at home." The House Un-American Activities Committee opened hearings on the legislation with a view to reporting the bill to the full House by the end of March.

The Department of Justice has again questioned the constitutionality of the bill, which would require Communists and leaders of Communist-front organizations to register with the Justice Department, ban them from government jobs, and provide stiff fines and jail terms for anyone "conspiring" to establish a Communist dictatorship. In a letter to Representative John Wood (D, Ga.), chairman of the Un-American Activities Committee, Assistant to the Attorney General Peyton Ford reminded him that the Department of Justice in 1948 expressed grave doubt about the constitutionality of a similar bill.

Last week the Veterans of Foreign Wars and the US Chamber of Commerce testified in favor of the legislation. Emerson P. Schmidt, director of Economic Research for the C of C, used his appearance before the committee to publicize the favorite Republican theory that "democratic socialism may be a mere prelude to Communism." To emphasize his point, he said, "An illustration . . . may be found in the Department of Agriculture, which with its various agricultural programs during the 1930's moved with more momentum in the direction of socialism than was true of any other phase of the New Deal. A careful examination of the government reports on Communism shows that more Communists and people accused of Communist leanings had a berth in the Department of Agriculture than in any other government department."

It is that kind of reasoning which makes the Mundt-Nixon bill a dangerous weapon. As Senator Harley Kilgore (D, W. Va.) pointed out: "It is fundamentally a sedition bill, and, in the hands of a prejudiced prosecutor or national administration, can be used against organized labor and in fact against other organizations. . . ."

EDGERTON ON LIBERTY

Dorothy Bailey was a civil-service clerk in the Federal Security Agency. On the recommendation of a Regional Loyalty Board she was dismissed from government service as disloyal. The Loyalty Review Board upheld the Regional Board on appeal. On further appeal the boards' decision was upheld in a 2-to-1 opinion by the District of Columbia Court of Appeals.

The majority opinion declared that without regard for the "due process" and "fair procedure" guaranteed all citizens before punishment, "the President . . . may remove from government service any person of whose loyalty he is not completely convinced." Judge Henry Edgerton, whose restrictive-covenant dissent was confirmed by a subsequent decision of the Supreme Court, challenged this view. Judge Edgerton found unconstitutional both the decision of the Loyalty Boards and the loose procedures which led to their decision. He declared in part:

Without trial by jury, without evidence, and without even being allowed to confront her accusers or to know their identity, a citizen of the United States has been found disloyal to the government of the United States.

For her supposed disloyal thoughts she has been punished by dismissal from a wholly nonsensitive position in which her efficiency rating was high. The case received nationwide publicity. Ostracism inevitably followed. A finding of disloyalty is closely akin to a finding of treason. The public hardly distinguishes between the two.

No charges were served on appellant. The chairman of the Regional Board said "Nobody has presented any charges." . . . The Federal Bureau of Investigation had reported that informants believed to be reliable had made general statements purporting to connect her with the Communist Party. These reports were not disclosed to the appellant and have not been disclosed in court. The informants were not identified to the appellant or even to the Board. Their statements were admittedly not made under oath. The appellant denied under oath any membership in and any relationship or sympathy with the Communist Party. . . .

She submitted her own affidavit and the affidavits of some 70 persons who knew her, including bankers, corporate officials, federal and state officials, union members, and others. . . . She proved she had . . . taken positions inconsistent with Communist sympathies. . . .

Against all this, there were only the unsworn reports in the secret files to the effect that unsworn statements of a general sort, purporting to connect appellant with Communism, had been made by unnamed persons. . . . Appellant sought to learn the names of the informants or, if their names were confidential, then at least whether they had been active in the appellant's union, in which there were factional quarrels. The Board did not furnish or even have this information. Chairman Richardson said: "I haven't the slightest knowledge as to who they were or how active they have been in anything." All that the Board knew or we know about the informants is that unidentified members of the Federal Bureau of Investigation, who did not appear before the Board, believed them to be reliable . . .

On such material, the Review Board sustained the action of the Regional Board and directed the Federal Security Agency to dismiss the appellant.

Appellant's dismissal violates both the Constitution and the Executive Order. However respectable her anonymous accusers may have been, if her dismissal is sustained, the livelihood and reputation

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of any civil servant today and perhaps of any American tomorrow are at the mercy not only of an innocently mistaken informer but also of a malicious or demented one unless his defect is apparent to the agent who interviews him. . . .

Since dismissal from government service for disloyalty is punishment, due process of law requires that the accused employee be given all the safeguards of a judicial trial before it is imposed. . . .

The appellant was not tried by a jury. She was not clearly informed of the charge against her. . . . The appellant violated no law. Even the Executive Order was issued after the activities from which her disloyalty is inferred took place, if they took place at all. She was not confronted with any witnesses against her. Forced idleness may well be considered a cruel as well as unusual punishment. It has been considered more severe than forced labor. . . .

Since the present appellant was not a policy-making officer, had no access to state secrets, and was not even in a sensitive agency, it is doubtful whether any political opinions of hers, however obnoxious, could reasonably be deemed to interfere with the efficiency of the service. But the question is, I think, immaterial here, for the "vague and indeterminate . . . boundaries" of the term "disloyal" have made the Executive Order as construed and applied a restraint on many opinions that certainly cannot be deemed to interfere with the efficiency of the service. . . .

Freedoms that may not be abridged by law may not be abridged by executive order. Executive power to control public employment stands on no higher constitutional ground than legislative power to tax. . . .

Appellant's dismissal abridges not only freedom of speech but freedom of thought. Whatever loyalty means in the present connection, it is not speech but a state of mind. The appellant was dismissed for thinking prohibited thoughts. A constitution that forbids speech control does not permit thought control.

The court thinks Miss Bailey's interest and the public interest conflict. I think they coincide. . . . Even if her services were on the whole undesirable, to oust her as disloyal on rumor and without trial is to pay too much for protection against such harm as she could do in such a job. The cost is too great in morale and efficiency of government workers, in appeal of government employment to independent and inquiring minds, and in public confidence in democracy. But even if such dismissals strengthened the government instead of weakening it, they would still cost too much in constitutional rights. We cannot preserve our liberties by sacrificing them.

SUPER SPY HUNT

In the third week of McCarthy's great spy scare the reputation which suffered most was that of Senator Robert A. Taft. The Senator declared, with one arm around McCarthy and both eyes shut tight, that "the reaction seems to be pretty good." Taft added that he had advised McCarthy that "if one case didn't work out, to bring up another." In other words, if one lie was exposed, go on to the next.

McCarthy took Taft's advice. He put his chips down, all or nothing, on one super spy—the top Russian espionage agent "in America, now working in the State Department." "It's enough to make your blood boil," cried Fulton Lewis Jr., without stopping to ask whether the charge was true or false.

Like the rest of McCarthy's charges, it was totally false. The man in question has now been identified as Owen Lattimore, head of the Walter Hines Page School of International Relations of Johns Hopkins University, a distinguished author and educator, at present in Afghanistan on an important mission for the United Nations. Lattimore was first a businessman in China, then an explorer, later a scholar working under grants from the Carnegie and Guggenheim Foundations and from Harvard. Just one year's personal experience cured him of a devotion to Chiang Kai-shek. He has denied McCarthy's charges, which he calls "pure moonshine," and is returning to the United States to confront his accuser; his denial is supported by a number of important people in a position to know the facts.

The exposure of McCarthy's latest falsehood makes life harder for his well-wishers. Yet not a single member of the Republican Party has spoken out against him. A widespread revulsion against all witch hunts should follow the unfriendly treatment given McCarthy by the press. Instead, the master strategists seem intent on simply diverting the witch hunters to new trails, tracking down other outspoken public servants in the Department of Commerce.

THE WASHINGTON POST

"Somebody around here is helping the Commies!"

HAROLD LASKI

Harold Laski dissected state and society with incomparable brilliance. He strove also to remake society through political action. In the lean days of the Labour Party he was indispensable, bringing clarity and self-confidence to a struggling movement. In power, Labour needed minds shaped more by pressures of power politics and deep national feeling than by Laski's world of logic and design.

His giant intellect was housed in a frail body. In his pocket, in recent years, were instructions to students or passers-by in case he should fall unconscious. He continued to fight, however: his last effort was to challenge the failure of the Labour Party to attack class privilege in education. He was held silent at the Labour Party conference. The *New Republic* asked to print the speech he had prepared. Laski agreed, but then the election campaign began and, for Laski, the loyal Labour Party member, the time for defection and criticism was over—over for good.

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THE COMMUNIST STRATEGY IN FRANCE

by Percy Winner

ONE NIGHT recently there was a wild row in the French National Assembly in Paris. The private fist fights which had been an almost daily feature of debates on the anti-sabotage laws merged into a single, huge barroom brawl. Some two hundred members took part. Eyes were blackened, noses bloodied, ribs cracked. It was the worst show of violence in the history of a turbulent legislative body.

Edouard Herriot looked down at the scene from the speaker's chair. He is an old man who saw the Third French Republic stumble along its last lap. Now, on the night in March, 1950, he thought he was watching the Fourth come close to the same fate. This, he commented bitterly, was "the end of the parliamentary regime in France."

The Communists provoked the violence precisely because they want Frenchmen like Herriot to believe the end of the parliamentary regime is in sight. (They have been doing the same thing in Italy, and for a similar reason.) They themselves do not share the belief. But they want men of good will to become men of ill will in the presence of an apparently extreme threat to civil peace. They want repression to be used. They want to create among the people a willingness to surrender to the safekeeping of a tyrannical regime of undemocratic order—to Charles de Gaulle; and they hope they can make the democrats out-de Gaulle de Gaulle to prevent him from coming to power.

They are doing this in France (and in Italy) because they know that no longer can they make any frontal attacks that would prevent France (and Italy) from becoming armed, through the Military Assistance Program (MAP), as bastions of the Atlantic alliance. Theirs is a long-term rear-guard attack to plant now the seeds of future weakness. Georges Bidault's use of the phrase "commando tactics" is apposite, but in this case they are the tactics of an anticipatory retreat. The Soviets know that the chances of Red armies reaching the English Channel and the Adriatic in the event of a war are diminishing; they also know they must act quickly if their Fifth Columns behind the Atlantic lines are to be made up of underground resisters trained and experienced in the techniques of individual sabotage and mass subversion.

A remark Marshal Stalin is said to have made to President Roosevelt at Yalta is relevant. The great mass of the French people, he said, would collaborate in the future as they had with the Nazis; they would surrender to the greater of two foreign powers provided it was closer and stronger. Only a minority of the French could be counted on to resist, but they would be good at it.

Stalin's efforts to get the mass of the French to collaborate with the Soviets have failed. He knows now that his effort to prevent them from collaborating with the Americans cannot succeed. Hence, Communist tactics in France have been sabotage in the ports in January, sabotage in parliament in February, sabotage through the labor movement in March. And it was the strategy to use the failure of these tactics now to build up the cadres and the atmosphere for successful underground resistance in the future. Stalin is playing for keeps too; and in his long-term game the deliberate creation of the tensions which Secretary of State Dean Acheson rightly calls destructive are the ace cards.

Tension is a matter of feeling. Hence the mood of the French people is important. That mood had changed during the last few months. In the weeks before Easter a wave of a kind of belligerent hopefulness began rising. Workers no longer merely moped and grumbled. They fought, too, and with the feeling that struggle was worthwhile, rather than in despair. Many hundreds of thousands were out on strike.

What precipitated the strikes was the adoption by the Assembly in February (by 450 to 0) of a law unfreezing collective bargaining for wages for the first time in 10 years. There were strikes in metal, automobile, textile, gas, transport, electricity and other industries; among bakers, dockers, port workers; in insurance and in the building trades; in the municipal services and in government social-security offices. Most of the workers asked for a 3,000-franc monthly bonus, pending long-term adjustments. (Real wages are in many cases half what they were before the war.) Three thousand francs is about $8. The pattern of the situation becomes clear when one points out that $8 is from 15 to 20 percent of the total monthly wages of many workers, and that most employers—including the government—balk at giving raises of more than five to eight percent. The wage situation is so bad that even the predominantly reactionary French hierarchy of the Roman Catholic Church has come out openly in favor of granting the workers' demands.

But what made the strikes the expression of a wave of hope was an element of political psychology: between Christmas and Easter, a large number of Frenchmen came to believe that there was a good chance of postponing, perhaps indefinitely, the end of France and themselves. The factor which as much as any other changed the gloomy defeatism of the winter into a hopeful, fighting spirit this spring was the H-bomb. To the

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French it meant that a shooting war wasn't likely this year, perhaps for several, even for many to come. A new expectancy of life lay behind the extent and vigor of the strikes.

Unlike the workers, the government acquired no new confidence in its own expectancy of life. On the contrary, Bidault's coalition—which no longer quite coalesces—had to ride a sea of troubles, and saved itself by narrow margins. The first three months of the year were as difficult for the government in power as any since the war. First the budget was battered into a shape that made it unworkable. Then the "Affair of the Generals" infected the reputations of scores of important figures—Revers, Mast and equally high-ranking civilians were involved in a foul scandal of Indo-Chinese corruption. All the time, the Communists were busily exploiting the scandal by sabotage of arms shipments to Indo-China—flash strikes, violent demonstrations, boarding of ships and unloading or dumping of arms. Next, the Socialists walked out of the government. Then, the Communists turned their sabotage techniques to work on shipments of arms from the United States under MAP. Finally, the strikes started.

But the great mass of the workers weren't really interested in Indo-China. Bad as it was, it didn't come first to men and women who believed that food came first and who didn't have the food. And the effect of the new belief that no shooting war was in the offing tended to nullify the force of the Communists' peace offensive. The strongest talking points of Communist propaganda had been that Wall Street was plotting a war on French soil and that French foot soldiers would be sent once more to slaughter.

The H-bomb took war off the horizon. The minorities on the Right dared to talk of neutralizing France. The majority of Frenchmen, especially among the workers, lost much of their anxiety about the forthcoming shipments of MAP arms. The great desire in all classes to have Washington get together with Moscow was pointed toward peace, no longer toward the danger of imminent war.

The Communists shifted the main front of their wrecking to parliament. The Assembly, even before they started their sabotage, hadn't been offering much to Frenchmen who wanted to live in peace and work for a living wage. The threat of dissolution and new elections, hanging ever more heavily over a no longer representative body, dominated the thinking of all political movements except the Communist and the Gaullist. Everyone electioneered, and the rallying point of all but the Communists became the issue of domestic peace and order.

So the Communist members of the Assembly threw their support to the strikers, offering a program of domestic strife—BUT strife with hope for bread and wine. They deliberately sabotaged the strikes by injecting extraneous political elements into a legitimately economic movement. And having done this, they fought the anti-sabotage laws in such a fashion as to make them appear weapons not only against the illegitimacies of sabotage but against the legitimacy of the wave of hopefulness. When the key measure was adopted, it contained a provision which could really mean "the end of the parliamentary regime in France." This is that "voluntary participation" in any activity which may "prepare" or "have the result" of interfering with the manufacture or movement of "material destined for or used by national defense" is punishable by imprisonment. Modern national defense being as broad a term as it is, the law can put any striker in jail.

De Gaulle's stock is again being quoted on the political market. He is willing as always; as a matter of fact, he is now willing to be the *chef* of a Franco-German "Union" with his old friend, the "good" German, Konrad Adenauer, as his *sous-chef*. What a force for peace that would be—a pact between a man who is the spiritual bastard of Philippe Pétain and one who provides the political "morality" of the blackest elements of reaction in the Vatican Secretariat of State!

The Communists boosted de Gaulle's stock enough to bring him back to the old stand. The first string of Maurice Thorez's strategical bow is to play the game Thälmann played in Germany between 1930 and 1933. The idea is that a France ruled by some neo-Fascist facsimile of a Third Empire would hurt Atlanticism, hence America, more than a France under a Fourth Republic. But it's only the first string and not really expected to work. The second is a political equivalent of the scorched-earth policy the Russians always use in retreat. That has some chance of working: the Republic may commit suicide.

And even if neither works, the effort to make them work is succeeding in finding and training the Fifth Columnists who will provide the underground resistance in a country supposed to be the strong right arm of the Atlantic alliance in Western Europe. It happens also that the France which is slated to coöperate with America has an Achilles' heel—the love of power of so-called democratic statesmen. By their efforts to keep de Gaulle out of power, by their methods of blind and stupid alienation of labor, they may transform new hope back into despair and bitterness. And if they do, if the White House and the State Department let them do just what the Kremlin wants them to do, the Fifth Columnists of World War III will not be lonely, frightened men; they will have the French countryside doing for the Russians what it did for the Americans in World War II.

Paris

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HAROLD L. ICKES: *Mr. Krug's "I Am the Law"*

IN THIS space a week ago I said that the state of California had illegally granted leases in and to the tidelands which the Supreme Court has ruled belong to the United States. I realize the gravity of this charge and my obligation to sustain it.

As Secretary of the Interior, Julius A. Krug held that the Federal Mineral Leasing Act did not apply to the tidelands. Mr. Krug was wrong, according to my own opinion as well as that of other lawyers with whom I have talked. Then, as a brilliant follow-up, he promptly signed a stipulation purporting to give the state of California, in certain instances, the right to grant leases to offshore oil lands of the United States, which right he had just disclaimed so far as the federal government was concerned.

With the aid and abetment of Attorney General Tom C. Clark and certain subordinates of his own, Mr. Krug made himself look utterly ridiculous by holding (a) that the federal government had no power to grant leases in the tidelands and (b) that the federal government, through himself, had power to grant to California the power to grant leases in the tidelands that the government had no power to grant. In other words, according to Mr. Krug, the federal government lacked the power to do directly what it might do indirectly.

Although Mr. Krug is not a lawyer, he should have had sense enough to know that only Congress can confer power to grant leases in or to public lands. His solicitor, Mastin G. White (of Texas), must have known that, in advising Mr. Krug to sign such an extraordinary stipulation with Attorney General Howser of California, he was suggesting in effect that his superior put on a dunce's cap. C. Girard Davidson, Assistant Secretary of the Interior, who is also a lawyer, must have known that executive officers, by stipulation, cannot confer statutory powers, especially if they disclaim the possession of the powers proposed to be delegated. The present Secretary of the Interior, Oscar L. Chapman, another lawyer, did know that such a thing could not legally or properly be done. He dissented from the whole questionable proceeding and was by-passed as the result. Tom C. Clark, also of Texas, the then Attorney General and a party to the stipulation, must have known that he was agreeing to highly objectionable official behavior.

As of October 19, 1949, Assistant Secretary Davidson wrote to Rufus W. Putnam of the State Lands Commission of California approving the offering of two parcels of federally owned oil land for leases. It can, of course, be said in Mr. Davidson's behalf that he was only following the policy that had been laid down by the Secretary of the Interior. And yet it is surprising that he should not have protested to Mr. Krug that the stipulation giving California the right to issue leases to land owned by the government was a bald usurpation of power.

The Secretary of the Interior is a continuing officer, regardless of who the incumbent may be at any particular time. Since the Secretary of the Interior (Mr. Krug), committed an illegal act contrary to the public interest, it is the duty of the Secretary of the Interior (Mr. Chapman) to repair the damage caused by the misconduct of his predecessor. Mr. Chapman must know that the Clark-Krug-Howser stipulation violated the law. Presumably, as a conscientious citizen and law-abiding official, he will annul this improper and obviously illegal stipulation. It is also to be hoped that he will not stand in the way of the long overdue departure from Interior of officials who joined in what amounted to a conspiracy to permit preferred California oil companies to appropriate oil belonging to the people.

A clear responsibility rests upon Secretary Chapman in this matter. The same is true of Attorney General McGrath. The Attorney General is also a continuing officer of the government, regardless of who the incumbent may be at any particular time. It is Attorney General McGrath's duty to strike down the unlawful and potentially ruinous ruling of his predecessor (now an Associate Justice of the Supreme Court, may God save the mark!) and thus protect the people in their possessory right to California tidelands oil.

The President himself should take cognizance of further failure to act on the part of the officials immediately responsible for this threatened misappropriation of immensely valuable federal property. Mr. Truman should make it clear to all of his subordinates who may be involved that if the Chief Executive could not delegate authority to California to grant leases in and to federal lands, they, whether singly or jointly, certainly lacked power to do so. It should also be noted that, whereas federal executive officials may not legally authorize California to administer federally owned public lands, the officials of California, under the laws of that state, have no right to accept even a legal delegation.

Certain predatory oil interests too long have had their own way with the federal government. It is high time that they be put in their proper place. The same may be said of some of the natural-gas interests, with particular regard to Senator Kerr of Oklahoma whose notorious gas bill, which the President should not fail to veto, would make possible a raid upon the users of gas from which he would profit personally. HAROLD L. ICKES

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BOOKS IN REVIEW

THE MAN WHO ATTENDS CATASTROPHES

by Robert Hatch

JOHN HERSEY is a discriminating and tireless reporter as well as a master showman, and his new book, *The Wall*, is a journalistic narrative that far outshines its predecessors in diligence, compassion and virtuosity. This introduction may seem to depreciate Hersey's work, but that is not the intention. I admire *The Wall* and am glad that it is being widely admired by others. But it is a book easily damaged by injudicious praise. To call it a great novel, for example, is to invite comparisons that *The Wall* is not constructed to meet. Hersey does not create a world, people it with men and women of his own imagining, and set them in conflict with one another according to his understanding of moral imperatives and emotional drives. He is a man who attends catastrophes to observe how people act in an extreme situation. It is the shattering event that sets him in motion and the pattern of his narrative does not arise from his actors; it is imposed upon them. His talent rests in finding out precisely what happened and conveying the information in terms that enlist the reader's respect and warm allegiance. No one writing today can match Hersey's appreciation of man under stress; he is a witness for humanity in a time of terror.

THE WALL, by John Hersey (Alfred A. Knopf; $4).

What is impressive about *The Wall* is its overwhelming detail, its great patience, its capacity for understanding and responding to a perplexing variety of personalities. What is spectacular about it is the machinery Hersey has constructed to transmit his information. The device is not new—the book purports to be a diary recovered from the ruins of the Warsaw ghetto; the author introduces himself in the role of a soberly dedicated editor—but Hersey has worked out this classic pretense with matchless ingenuity. The selections culled from the notebooks of Noach Levinson, self-appointed archivist and historian of the doomed Jews, covers events from November, 1939, to May, 1943. There are about 350 main entries in the 600 pages, each of them bearing two dates to show when the incident in question took place and when Levinson found the opportunity to record it. The name of the principal informant is also given so that facts may be checked against known prejudices. In addition, illuminating passages from rejected sections of the manuscript are often interpolated, entries are frequently printed out of chronology to improve narrative coherence, Levinson occasionally inserts observations and speculations of his own, and from time to time the editor permits himself a sentence or two of modest scholarship. All in all, an intricate construction.

Hersey would probably justify the pains he has taken to buttress his counterfeit by pointing to the verisimilitude he has achieved. The effect is certainly brilliant, even though one's attention is sometimes more on the performer than on the performance and even though, in retrospect, it appears that some of the elaboration must be accepted as a virtuoso's indulgence of his own dexterity. It becomes clear early in the book that Levinson, the shoemaker turned diarist, is as superb a journalist as even Hersey (and perhaps only Hersey) could hope to unearth. The streets of Warsaw, the ghetto warrens, the behavior of individuals, the impulses of crowds, the enigmatic movements of the enemy, alarms and counter-measures, heroic exploits and touching details, party alignments and religious observances, black-market prices and the state of the weather are juggled and integrated into the kind of lively, persuasive, easily assimilated dispatch that marks the great reporter. The story he has to tell is both heroic and terrible.

It now seems that the Germans intended from the beginning to annihilate the Jews of Warsaw, but it suited their purpose to alarm the inhabitants as little as possible. They acted with a cat-and-mouse malignancy that accustomed their victims to the feel of the knife before the blade was drawn across their throats. From the building of the wall around the Jewish section to the "deportations" by the thousands a week (the Jews soon knew of the furnaces just outside town) to the final round-up and slaughter in the streets, the cat moved slowly and always left an illusion of hope, of escape, where in reality there was none. It was a skillful game.

Under this treatment, the Jews might have been expected to deteriorate into a state of apathetic fatalism, and that is perhaps what the Germans anticipated. Hersey's book is written to commemorate the fact that the Jews did not die until they were killed and that, as time went on, they died increasingly hard. The Germans used tanks and artillery for the last few defenders of the Ghetto, and even so a handful survived to remember.

To some degree—it is not known how much but I guess it to be considerable—Hersey based his book on documents that were saved from the ruins. Some of his surpassingly vivid characters, some of his ironic, amusing or touching incidents were supplied, and there are moments in the book when the author seems to be weighing too shrewdly the effect of this material on his audience. I recall the episode of an elderly couple who place a message of poignant decency in a treasured keepsake just before it is expropriated for a German household. It is probably a well-documented incident, but as it appears in the book there is about it the calculated pathos of a fund-raising leaflet.

Hersey, for all his sympathy, writes as a technician, and it is proof, I think, that *The Wall* is less a work of art than a work of craftsmanship (the most honorable craftsmanship) that the reader is so curious to know what was discovered

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and what was created. Writers in all ages have found their facts by the wayside, but no one really cares about sources when the process of artistic digestion is complete. Hersey assembles his material with discrimination, constructs his edifice with astonishing deftness, but he does not revitalize it with his own spirit. The effectiveness of his book rests on the statement of a reporter that such events *did* happen, not on the authority of an artist that they *would* happen. The events were superb and Hersey deserves our gratitude for preserving them in a form that is both inspiring and unforgettable.

THOUGHTS IN THE DARK

OF FEAR AND FREEDOM, by Carlo Levi. Translated by Adolphe Gourevitch (Farrar and Straus; $2.75).

THE AUTHOR of *Christ Stopped at Eboli* commands the interested attention of anyone who read that wise and touching picture of a remote, oppressed peasant community in the hills of southern Italy. One felt in Levi's admirable vignette of eternal humanity the sensibilities of a poet and something of a seer. Now comes a book, written five years earlier, when the author was living in France. It was at the beginning of World War II; Levi was depressed about the future as well as the present and disenchanted with the past. He thought it at least a good moment to make his peace with himself and his estimate of the universe. This volume constitutes a philosophy, the author's philosophy, his confession of faith, his testament of feeling at one of the darkest moments in modern history. Now, in a moment scarcely less dark, he has chosen to issue the book, unrevised.

Of Fear and Freedom is declared by its translator (the exact translation of "Paura della libertà"—"Fear of Freedom"—would have been more meaningful) to be a work of genius, of that special genius in which ideas are merged with the music of their utterance and in which everything is suggestion and intimation, stirring the paths of our subconscious with the depths of wisdom not reducible simply to logical terms. Perhaps in the original Italian, which I have not had the opportunity to see, the effect may be that of poetic magic and moral incantation. In English it reads like a curious special jargon, neither idiomatic English nor language suggesting idiomatic Italian. The book is filled with magisterial aphorisms, or what perhaps in the Italian seem to be aphorisms. I have struggled to understand what is being said. I am confused by what purports to be poetic utterance and manages only to be turgid prose. It is almost impossible, for me at least, to think that the man who wrote the succinct, evocative prose of *Christ Stopped at Eboli* could produce this foggy essay.

Yet a theme somehow does emerge, and a sense of the writer's seriousness and perception. The theme is that of man's fear in the presence of the sacred. Carlo Levi is sound enough in recognizing that religion is not all light, that there is a central core of darkness in it. The sacred is terrifying, and men have always proceeded to try to release themselves from the fear its idols promote. They have converted the sacred, fearsome and terrifying into mystery and ritual. They have worshiped "the divine father and the divine state [which] live eternally and jealously claim throughout eternity the slavery of women and the sacrifice of love." They fear freedom; "a new ambiguity is taking shape, a mechanical and sportive association of power and servitude. . . . The sacred history of the world is a history of willing servitude, of tortures, punishments and mutilations, expulsions and ritual killings, of slaughter and intolerance, of prisons and exiles." The state becomes a substitute god, and its dictatorial laws a surrogate idolatry. "There is the rise of human religion and its liberation." But human nature cannot brook freedom and shudders back to new submission.

This is about what Dr. Levi seems to say, though obscurely. Poetic prophecy is possible to a Blake or a Plotinus; in lesser hands it becomes the rhetoric of impassioned and semi-erudite confusion. *Christ Stopped at Eboli* was a little masterpiece of reflective observation.

NOTHING

A novel of wayward parents in post-war London

HENRY GREEN

The author of LOVING "has turned an acute and mischievous eye on young love and middle-aged liaisons in the Mayfair of 1948.... The dialogue is marvelously amusing. The novel's surface ripples throughout with comedy...an unqualified success, an entrancing performance that should win Henry Green new readers."

—CHARLES ROLO, The Atlantic

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THE VIKING PRESS

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This book is no masterpiece of philosophy; I am not even sure how much is being said, except platitudes dressed up to sententiousness and tricked out with allusions to recent anthropological studies in religion, and to the current unhappy state of man. IRWIN EDMAN

THE COURAGE OF LOYALTY

THE LAST OPTIMIST: A Spanish Democrat Tells His Story, by J. Alvarez del Vayo (The Viking Press; $4).

"THE DUTY of an exiled politician is first of all to remain loyal to his convictions and his principles," says Julio Alvarez del Vayo in *The Last Optimist*, and few men have demonstrated that loyalty with more courage and fidelity than the wartime Foreign Minister of the Spanish Republic. It has led him to possibly the loneliest position in today's political spectrum—that of the Left Socialist who still clings to the formula of the Popular Front because he sees no possibility of social change through alliance, even temporarily, with the Right.

The book is described as the personal history of a Spanish Democrat. It is that to some degree. We catch glimpses of del Vayo as a boy living in the gloomy Escorial, where his father was Military Commandant. We see him a student and already a Socialist in Madrid, Paris, London and pre-1914 Germany. In 1914-15 he worked as a New York newspaperman, observing the American labor movement with the politically conscious and somewhat critical eyes of the European Socialist. We follow him through the Spanish Civil War, his work at Geneva and finally his exile in New York. Yet, too often, the book becomes a simple historical recital of events in which del Vayo, the man, becomes lost and the political historian takes over. I wish that this were not so, for del Vayo, the man, is well worth knowing. The warmth of his character, his devotion to social justice, his love for his Spanish people somehow are lacking. Only occasionally does this personality emerge, as when he speaks of his dangerous clandestine visit to Franco Spain in the summer of 1949.

Del Vayo comments here, for the first time, on the famous story of the "Spanish gold" which the Russians are supposed to have demanded of the Republic as a price for Communist support during the Spanish war. He demolishes the propaganda against both Russia and Republican Spain on that score. Toward Indalecio Prieto, his one time cabinet colleague and fellow Socialist, he is less charitable. Prieto, he charges, used funds that were sent to Mexico for safekeeping to "promote divisions among the Republicans, to finance schisms in the Socialist Party, and to attempt to deal with the monarchists at the expense of the Republic."

Del Vayo's position as a Socialist who refuses to turn on Russia is what makes him a controversial figure.

> I have always disapproved [he writes] of those too clever decisions in foreign policy that confuse the people regarding the main issue. But specific points of difference do not incline me to join those who maintain that Russian policy since the war has been directed only toward territorial expansion, new markets and mastery of the world. I still believe that one of Moscow's chief objectives has been the destruction of fascism and feudalism. And while no one can deny that conflicts of interest would have challenged even the best efforts of post-war diplomacy, it is equally true that four or five years of honest coöperation, in the spirit Roosevelt established at Yalta, might have done much to overcome difficulties and stitch together the fabric of international relations.

At the same time, del Vayo says many things that will bring scant comfort to the Russians or their Communist allies in other lands, including our own. He criticizes Russian tactics in Eastern Europe, declaring his conviction that "genuinely anti-fascist, capable people, now suppressed, could have been drawn into the revolutionary effort to break the feudal basis of those former Nazi puppet states." He also objects to the Russian willingness, together with that of the Anglo-American bloc, to use a rearmed Germany as a pawn in the cold war. And he emphasizes his opposition "to any policy that permitted the disappearance or submission of the Socialist Parties," pointing out that even in Eastern Europe "Communist insistence on absorbing the Socialist Parties has proved an error."

There are very few Socialists or liberals who still speak in friendly terms of Russia; they are either convinced that Russia has become a new imperialism or they have learned to tread softly in the presence of the Committee on Un-American Activities. Del Vayo still sees hope in being able to work with Russia and no hope whatever in Socialist or liberal flirtations with reaction. It would be easy to label him "fellow traveler"—he admits that himself. Yet no one who has known him from those war days in Madrid until today can believe him capable of the intellectual surrender that Communism demands. Indeed, his book refutes the implication.

Whether his optimism in thinking that there is still chance of agreement between the United States and the Soviet Union will be justified, only history can tell. But del Vayo has held high position in his own land and internationally; he knows the Western world, from Moscow to Washington, intimately. As a diplomat and a distinguished journalist he stands in an excellent position to evaluate the social and political history of the past thirty years. It is just possible that he may be right. ALEXANDER H. UHL

Alexander H. Uhl is former Foreign Editor of the newspaper PM and spent many years in Europe as correspondent for the Associated Press. He has been specializing in foreign-affairs reporting in Washington.

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BRIEF COMMENT

Pavlov: a Biography, by B. P. Babkin (Harvard University Press; $6).

Dr. Babkin, who is himself a distinguished physiologist and neurologist, was born and educated in Russia, where he was for many years a pupil of Pavlov, the great scientist whose name carries the inevitable tag, "father of the conditioned reflex." Now on the staff of the Montreal Neurological Institute, Dr. Babkin left Russia a few months after the Soviet government came to power, and there is no evidence in his book that he has ever been back. Since Pavlov remained in Russia until his death in 1936, the biographer has worked with scanty resources, drawn from his own memory and such documentary material as was available to him in Canada. He has done surprisingly well, under the double handicap of this limitation and of the fact that he is a scientist, not a writer. His sprawling book includes not only the story of Pavlov's life but a long account of his scientific achievements, evaluated by Babkin and others. The biographical material is rather starry-eyed; the scientific matter is businesslike, and brings Pavlov pretty well up to date. B. B.

The Diplomat, by James Aldridge (Little, Brown; $3.75).

For the past decade the story of much history-in-the-making has been book-fed to us by aging and disillusioned diplomats. Now a young and angry writer, James Aldridge, attempts to take us behind the sham of modern diplomacy and show us how history is really made—and with what motives. His considerable powers as correspondent and novelist are focused on a corner of the cold war, dramatically recreating the 1946 East-West clash of ideas and ideologies over a revolt in the Northern Iranian province of Azerbaijan.

Lord Essex, whose looks and personal idiosyncrasies closely resemble those of a distinguished former British envoy, arrives in Moscow to discuss the Iranian crisis with Soviet leaders. His assistant is a dour, young and undiplomatic Scotsman, Ivre MacGregor, picked for his intimate knowledge of Azerbaijanian problems. In the Soviet capital they meet the rather seedy Anglo-American press corps, Stalin, Molotov, and a well-bred British beauty, Kathy Clive, an employee of His Majesty's Embassy with undetermined duties and a talent for being present when the author needs her.

Accustomed to success, Essex finds himself balked both by Kathy and the Kremlin. Rather than return home without a diplomatic victory (Russian agreement to end interference in Iran), he accepts Stalin's suggestion that he visit the troubled province to see for himself whether the uprising was Soviet-inspired. He is accompanied on the fact-finding investigation by MacGregor and Kathy. Essex adds the facts to prove what he set out to prove; but to MacGregor, the facts substantiate his belief that the Azerbaijanians are revolting against intolerable social and economic conditions for which the British are more responsible than the Russians. This ideological conflict between the old man and the young is rather artificially paralleled by their competition for Kathy.

Aldridge's treatment of real personages and scenes is superb and lifelike, covering a wide range from the dialectic dialogues in the Kremlin to the campfires of the Kurd chieftains. The invented characters are much less credible, often acting and sounding like nothing more than symbolic pawns for the author's own mission.

But there is nothing diplomatic about tackling a major novel that is, in this A-day and H-age, likely to be judged for its political rather than its literary content. This reviewer salutes the author's courage. Whether one agrees with his thesis or not, *The Diplomat* is an almost continuously absorbing book, and an important one. Artistically, it represents a tremendous forward stride in Aldridge's development from neo-Hemingway to a style and stature of his own.

RICHARD LAUTERBACH

MOVIES

Good Week for Mules

WHATEVER FASCINATION there is in the idea of animals endowed with the gift of speech is apt to wear off early in life, and a screen comedy built upon the whimsy of a talking mule is properly approached with caution. Nevertheless, "Francis," the story of an acid-tongued Army mule who leads a green second lieutenant through alternate passages of military glory and psychiatric confinement, is funny enough to warrant mild applause in a bleak season.

David Stern, who wrote the movie from his novel of the same name, and Arthur Lubin, the director, have wisely made the animal the occasion, but not the basis, of the humor. The laughs really spring from a jaundiced view of Army regulations and the competence of the military mind. Francis speaks (rather Chill Wills speaks for her/him) in the accents and vernacular of the

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most browned-off of Regular Army sergeants; Donald O'Connor is ingratiatingly callow as the mule's protégé; the psychiatrists are wonderfully in need of psychiatry; and it is a pleasure to see Zasu Pitts again, even though she is not given very much to do.

It would be unfair to conceal the fact that the makers of "Francis" ran out of ideas before they ran out of film, but their small stock of jokes is good enough to be tolerable on repetition. Children will love the picture, and adults need not squirm.

"My Old Man" runs to fourteen and a half pages in the Modern Library edition of Ernest Hemingway's short stories. It is a spare story, much of it told by implication. A boy recalls the days when he tagged along after his father, a jockey reduced by age and an unsavory reputation to riding third-rate horses on the tenth-rate tracks of Italy and France. He recalls also his desolation when, a few minutes after the "old man" was killed in a steeplechase, he heard two strangers speak of him with hatred and contempt.

It is a great story, but there is not nearly enough factual meat in it to provide Hollywood with a feature picture. Casey Robinson, who adapted it for Twentieth Century-Fox into something called "Under My Skin," has had to do a major job of embroidery. He has invented a night-club singer, a Hollywood-coated version of Edith Piaf with a weakness for heels (Micheline Prelle—née Presle—of "Devil in the Flesh"); he blows up a couple of passing sentences into a sadistic killer (Luther Adler) bent on exterminating the jockey; he builds the shadowy father into a robust, two-fisted braggart, big enough, but not interesting enough, to be played by John Garfield; and he interpolates a number of horse races.

None of this works any improvement on Hemingway, but it can perhaps be excused on the ground that Hollywood had to supply what the reader would imagine. What cannot be excused is that the story should be debased into a kind of sordid *Sorrell and Son*, with the father battling his bad luck and worse impulses to protect his manly little tyke (Orley Lindgren and no actor) from unwholesome influences and at the end killing himself in a supreme effort to regain his son's respect. The movie is a sentimental tearjerker, a kind of literature to which Hemingway is not addicted.

It can be argued that when the European studios turn out routine pictures, they at least have more substance than the American equivalent. Or perhaps we just see fewer of them. "The Walls of Malapaga" is a die-stamped job, as original and full of surprises as a buffalo nickel. It displays Jean Gabin in the mood of exhausted virility that has been his manner since "Port of Shadows"; it is photographed bleakly in the slums of Genoa (*malapaga* is Italian for "deadbeat"); it recounts the melancholy idyll of a French fugitive from murder and an Italian woman "scarred by fate" (Isa Miranda). There is also the woman's daughter (Vera Talchi), a girl "neither woman nor child," who complicates matters by falling in love with her mother's man. A story could possibly have been made of that, but the girl is not a strong enough actress to do much more than pout and toss her braids. The picture moves tediously through long, brooding passages in which Gabin registers disgust with life. He expects the police to move in, the audience expects the police to move in, and at last they do just that. Then, with one last Gallic puff at a cigarette, it is all over until next time.

ROBERT HATCH

MUSIC: Record Roundup

AMONG THE RECENT record releases, none is less likely to gain wide popularity than Anton Bruckner's Fifth Symphony, in B flat major, played by the Hamburg Philharmonic Orchestra under the direction of Eugen Jochum (Capitol). The music of Bruckner has always encountered audience resistance wherever it has been played, except in Vienna, the composer's adopted home. Neither the subsidized labors of the Bruckner Society of America nor the devotional performances of Bruno Walter have persuaded American audiences that the immense Wagnerian symphonies of this simple but grandiose Austrian peasant-mystic warrant spending the 90 or 100 minutes each of them requires.

But Bruckner's music, despite its gigantic machinery, its unending repetitions, its tangential episodes and its banal climaxes, is somehow too strong and elemental to perish merely because almost nobody wants to listen to it. In the 65-year-old Fifth Symphony there are flashes of sublimity and moments of passionate eloquence. I found myself, as I dutifully listened through the two long-playing discs, alternately filled with the loftiest sentiments and the most commonplace irritation with a craftsman who did not know when enough was enough. For those with time on their hands, and with the patience to overlook the valleys for the sake of the mountain peaks, this record-

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ing may well be one of the year's special treasures.

Another Gargantuan work issued by Capitol is Reinhold Glière's Third Symphony, subtitled "Ilya Mourometz" and based upon a Russian folk legend. This music is wholly superficial, depending upon elaborate orchestral colors rather than on the merits of its themes. Unfortunately the recording, made by Jacques Rachmilovich and the Orchestra of the Academy of Santa Cecilia in Rome, gives such a pale counterfeit of Glière's polychromatic scoring that the sole value of the work is lost.

Several standard symphonies are now available in handsome new versions. Sir Thomas Beecham and the Royal Philharmonic Orchestra make a brilliant showpiece of Sibelius' moody, grandiloquent Second Symphony (RCA Victor), but Serge Koussevitzky, in the older RCA Victor recording, has more effective ideas for bringing out its best features. Beethoven's Second Symphony is expertly but rather dispassionately set forth by Pierre Monteux and the San Francisco Symphony (RCA Victor) in a recording that is acoustically the best of any to be had. Tchaikovsky's Fifth Symphony, in a re-release of Willem Mengelberg's prewar performance with the Berlin Philharmonic (Capitol), retains more of its dignity than usual without sacrificing its elocutionary fervor; some recent American recordings, however, are more brilliant in sound. Schumann's Fourth Symphony is played by George Szell and the Cleveland Orchestra (Columbia) in a manner that approaches perfection.

Arnold Schonberg, the contemporary composer most pointedly avoided by all the recording companies, large or small, owes a debt of thanks to a new concern, Esoteric Records, Inc., for a matchless performance of his Serenade, Opus 24, for Septet and Baritone Voice, recorded under the direction of Dimitri Mitropoulos at the time the work was prepared for an International Society for Contemporary Music concert last November. The seven movements of the Serenade, written in 1923, employ the uncompromising twelve-tone method which has won Schönberg more enemies than friends. But it is a more inviting sample than some of his other atonal pieces, for it is full of rhythmic verve, and the addition of the baritone voice to sing a Petrarch sonnet in the fourth movement provides variety.

Igor Stravinsky's Mass, composed in 1948 for a chorus of men and boys and double wind quintet, has now been issued, under the composer's direction (RCA Victor). In this quiet, deeply felt liturgical work, employing the official text of the ordinary of the mass, Stravinsky harks back to archaic usages of early fifteenth-century cathedral music, with an effect that grows more impressive with each new hearing. Another Stravinsky release (Vox), less distinguished in presentation, couples an old recording by Samuel Dushkin of the Violin Concerto with an indifferent interpretation of the Concerto for Two Solo Pianos by Vera Appleton and Michael Field.

Other contemporary works worth considering are William Walton's "Façade," with Edith Sitwell reciting her own giddy poems (Columbia); Bela Bartok's Music for String Instruments, Percussion, and Celesta, a true masterpiece, eloquently played by the Los Angeles Chamber Symphony, under Harold Byrns (Capitol); Darius Milhaud's First Symphony, conducted by the composer (Columbia); and a record containing two fairly interesting but on the whole second-class string quartets, William Walton's Quartet in A minor and Heitor Villa-Lobos' Sixth Quartet, both well played by the Hollywood String Quartet (Capitol). A lightweight but blithe and amusing relic of the tongue-in-cheek esthetic of the thirties is a record containing two pieces by Jean Françaix, a partially deposed Parisian fair-haired boy of prewar days —the Concertino for Piano and Orchestra and the Serenade for Twelve Instruments (Capitol).

An unexpected pleasure among recent releases is George Kulenkampff's deeply moving performance of the Dvorak A minor Violin Concerto (Capitol). Why this beautifully lyric and highly idiomatic concerto has dropped out of fashion it is difficult to say. The slow movement, in particular, displays all the virtues of Brahms at his most imaginative, and few of his academic vices.

CECIL SMITH

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ATOMIC ENERGY:

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This Special Section of the *New Republic* for April 3, 1950, contains the technological information regarding atomic energy, in peace or war, needed for a full understanding of the series of articles on this subject, of which the first appears in this issue.

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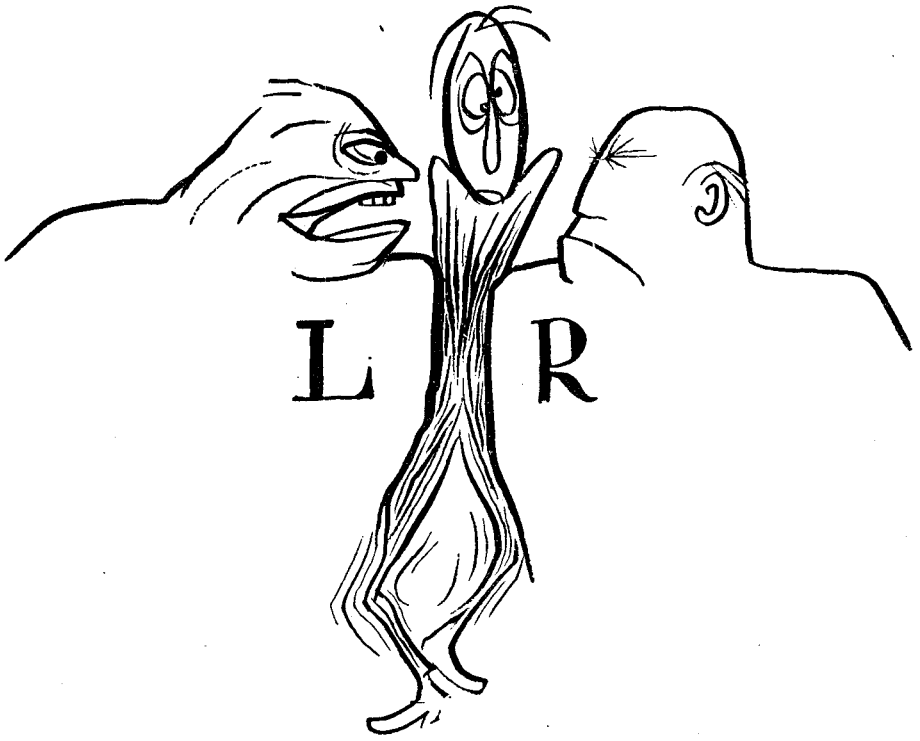

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ATOMIC ENERGY:

THE TECHNICAL FACTS

INFORMED DISCUSSION of any aspect of atomic energy, including the promised hydrogen bomb, must start with certain basic facts of nuclear science, engineering, geology, economics, military technology and geography. This "handbook" is an attempt to close the gap between science and technology on the one hand, and atomic politics on the other. The material is presented separately in outline form so as not to complicate unduly the unfolding of the political analysis which constitutes the main body of this series. The reader may, as he chooses, review the special section first, or consult it on relevant points in connection with the exposition in the articles themselves.

While all the information presented herewith is non-secret, having been obtained from a variety of general and technical journals, official documents, newspapers and other non-restricted printed sources in this country and abroad, much of it is unknown to many public officials who frame policy, and to the American people who by opinion and vote should determine it. Without a bare grasp of these essentials, an intelligent judgment by either group in the sphere of policy on super-weapons is impossible.

I. The Sources of Atomic Energy

The Raw Materials and Where They Come From. The two basic elements are uranium and thorium. Of these, uranium deserves first notice because fission is possible using uranium alone, whereas thorium can be used as a source only in combination with uranium. In its natural state, uranium ore in the form of uranium oxide (U_3O_8) is a fairly abundant element, more so than gold, for example. However, commercial deposits of ore—containing one percent or more of uranium oxide—are relatively rare. Rich deposits of pitchblende, running 50 percent or so of uranium oxide, are even more limited, those of the Belgian Congo, the Great Bear Lake region in Canada, and the Joachimsthal area in Czechoslovakia being the only ones known and commercially exploited in the days before the atom bomb, and perhaps even today. The next richest class of ores includes the carnotites, deposits of which, in fair quality, occur within a roughly circular area of 200 miles diameter in the Western United States, and in a few other localities. The US atomic-energy program is almost wholly dependent on continued exports of rich ores from Canada and the Congo.[1]

Uranium Isotopes and Plutonium. Natural uranium is not immediately useful in harnessing atomic energy for military purposes. Only that variety or *isotope* known as Uranium-235 (U-235) is naturally fissionable; and this isotope occurs as one part in 140 (.7 percent) of natural uranium. The major isotope, U-238, which comprises most of the other 139 parts of any given amount of uranium, is presently useful to the extent it can be converted into *plutonium*, an "artificial" fissionable element, by the neutrons released in fission of U-235.

Natural thorium can also, theoretically, be converted into another man-made fissionable element—U-233—with the aid of U-235 or plutonium. The thorium process apparently has some limitations or disadvantages, however, and is not now used by the USAEC.[2]

II. Ingredients and Operation of Atomic Bombs

A. How the Uranium-Plutonium Fission Bomb Works. The military (as well as the economic) value of uranium as a source of vast energy depends upon the "chain reaction," or, as the early Russian scientific literature more vividly described it, the "branched chain reaction." When an atom of U-235 "captures" an elementary particle known as a neutron, under appropriate circumstances, the atom will split (fission), emitting its own neutrons; these will cause the fission of other U-235 atoms, which in turn will release more neutrons to continue the process or chain.

The successive instances of fission, accompanied by energy releases, that take place and multiply at a geometric rate in the branching of the chain, account for the speed as well as the violence of atomic explosives. When the chain reaction is "fast" we have a fission bomb; but the reaction can be fast only if the material involved is either natural U-235, plutonium, U-233, or combinations of these fissionable substances.[3]

Critical Mass of Uranium-Plutonium Bombs. The fission bomb, as we are told by the Smyth Report and many other published sources, requires a minimum amount of U-235 or plutonium to produce an explosive, fast chain reaction. This minimum amount, or *"critical mass,"* with respect to U-235, was placed by the Smyth Report (and by the corresponding official British statement) at between one and 100 kilograms (*i. e.*, 2.2-220 pounds). The correct amount, though an official "secret," is known, within very narrow limits, to competent physicists throughout the world; it was estimated by US scientists and (somewhat more closely) by British scientists in 1941; published Russian technical papers, in the same year, suggested it might be around seven kilograms. For purposes of later discussion we adopt an estimate, in the range of those published, of 10 kgs. or 22 lbs. (For illustrative purposes in this context an error of a few kilograms either way can make little difference.) To obtain 10 kgs. of pure U-235 requires the processing of some 3,000 lbs. of pure uranium metal. In other words, several tons of the richest ores—or many more of those of poorer quality—must be refined to make a bomb. Comparable amounts of pure uranium metal, used as fuel rods in atomic reactors, are needed to make critical quantities of the other fission-bomb material, plutonium.[4]

Production of U-235. The separation of U-235 from U-238 is a difficult procedure, involving, in one form or another, the minute difference in weight between the two isotopes. During the war the US successfully developed three of the six known laboratory methods of isotope separation into large-scale operations. Of these the so-called gaseous-diffusion method has proved the most practical and economical; the K-25 plant at Oak Ridge, Tennessee, using this method, has not only been kept in operation and im-

[1]The footnotes on this material are assembled on page 8.

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proved but is being increased in size. This plant, which cost about half a billion dollars to build, has been estimated to have a constant power consumption of between 300,000 and 400,000 kilowatts. One may judge the immensity of this energy expenditure from the fact that it represents almost one percent of the *total public utility* generating capacity of the US in 1940. The isotope-separation process for the production of U-235 has few, if any, peaceful economic uses; it might be abandoned under international control.[5]

Production of Plutonium and Radioactive Isotopes. To make plutonium for bombs (and to produce radioactive isotopes for research and medicine, and energy which may then be converted into electric power) the other major nuclear-production device must be used, namely, the *atomic reactor.* The atomic reactor, or "*pile,*" is the single most important machine in the field of nuclear engineering. It manufactures plutonium; it is the source of radioisotopes for research and medical therapy; it generates heat which may be used to make electric power. It is therefore an all-purpose engine essential for both the military and peaceful applications of atomic energy.

Atomic reactors come in all sizes and types. Their power is measured in kilowatts of output, and they range from the historic ⅕ kilowatt pile put into operation at the University of Chicago in 1942 to the original three huge piles at Hanford, Washington, described as being in the range of 300,000 to 400,000 kilowatts.

Large reactors with high-power levels are not required for the production of radioactive isotopes. The small reactor at Oak Ridge, for example, which supplies practically the entire US supply of such isotopes plus a considerable volume for export, was designed to operate at only 1,000 kilowatts, but subsequently was improved to function at 2,000 kilowatts or better. At the 2,000-kilowatt level of operation, it would require about 15 years to produce enough material for a single bomb. The British have two piles designed for 100 and 6,000 kilowatts respectively, the second of which is obviously large enough to meet general British requirements for isotopes plus a surplus for export.[6]

Whatever the size or type, there is a definite relationship between the power or energy level of an atomic reactor and the rate at which it produces plutonium. This relationship has been indicated in many published sources as roughly one gram of plutonium for each 1,000 kilowatts in the power level and the consumption by fission of one gram of U-235.[7]

Bomb Production Rate and Size of US Bomb Stockpile. On the basis of published data, reasonable estimates can quite easily be made of the US atomic-bomb-production rate and the size of the present US stockpile. Two such estimates, which appeared in *Business Week* and in the *Armed Forces Chemical Journal* in the spring of 1949, set the production rate at approximately 50 bombs per year.

Given (1) the known ratio of plutonium production to the power level of reactors; (2) indication as to the size of the Hanford reactors; and (3) estimates of critical size; and, assuming that, as alternative experimental processes of uncertain workability, the K-25 plant at Oak Ridge and the original Hanford installation were of roughly similar production capacity, a rating of 50-75 bombs per year seems plausible. Recent and continuing expansion, including the construction of three reactors at Hanford, may double this output within a year or two. The present US stockpile may thus be placed between 200 and 300 uranium-plutonium bombs. These are rough conjectures; on the other hand they are probably sufficiently within range to serve as guides to the dimensions of the business for the purposes of military and political analysis.[8]

B. Principle of Operation of the Hydrogen Bomb. When uranium or plutonium undergoes *fission,* its atoms break up into atoms of lighter elements; in this process a certain small percentage of the original mass is converted into enormous quantities of energy. In the nuclear process known as *fusion,* when atoms of the light-element hydrogen are transmuted into atoms of helium, a certain small percentage of the original mass is also "lost," *i. e.,* converted into enormous quantities of energy. Both *fission* and *fusion* are necessary to the functioning of a hydrogen bomb. The core of such a bomb would be one or more "ordinary" uranium-plutonium fission bombs; their detonation would serve as a "trigger" or "primer" by furnishing a high critical temperature—20 million C—in the presence of which the hydrogen envelope surrounding the U-P bomb would undergo fusion, accompanied by the release of vast amounts of heat, intense radioactivity and prodigious blast effects.[9]

Source Material. Each hydrogen bomb will require one or more U-P bombs as a fuse or detonator, to create the exceedingly high temperatures required to start the fusion process. It has been suggested that the basic elements of the hydrogen envelope may be heavy hydrogen (deuterium); lithium hydride (a chemical compound of lithium and hydrogen); or tritium (a recently developed, man-made hydrogen isotope). Common hydrogen is of mass 1; deuterium, mass 2; and tritium, mass 3. The raw material for hydrogen isotopes—water—is of course obtainable in unlimited quantities everywhere; and lithium is also readily available.

The problem is, therefore, not the scarcity of source materials, but whether the theoretical possibilities of the superbombs can be realized in practice, and how difficult the large-scale production of the refined ingredients may prove to be. Tritium, for example, has been produced thus far only in minute quantities by neutron bombardment in particle accelerators; and large-scale production would appear to require the use of uranium reactors.[9]

Energy Release and Limits on Size. Hydrogen bombs would release energy per given weight in much greater amounts than would uranium-plutonium fission bombs. It has been estimated that one kilogram of lithium hydride would release an explosive force three times as great as the same weight of U-235, and tritium, seven times as great. What is even more important, the hydrogen bomb, unlike the U-P bombs, is not theoretically limited as to size. A hydrogen bomb capable of destroying even the largest city would therefore seem possible. Moreover, the radioactivity of a hydrogen bomb with a thousand times the explosive force of a U-P bomb would be a thousand times as great, even if blast effects fell off by a cube-root law. Physicists of the rank of Einstein and Teller have therefore suggested that a number of hydrogen bombs might so contaminate the earth with radioactivity as to make it uninhabitable.[9]

Peaceful Uses and Measures of Control. No peaceful uses have been suggested for the fusion reaction in the hydrogen bomb. While the sun manufactures its energy by similar means, the reaction appears to be too violent, too hot and too intensely radioactive to lend itself to constructive purposes on earth. Therefore the control problem would not be to ensure the peaceful use, and prevent the aggressive military use, of a double-purpose process, but simply to enforce the prohibition of manufacture of the hydrogen bomb and its necessary ingredients.

Little has been said by scientists about the technical measures which would be required to provide reasonable assurance that hydrogen bombs were not made under an international control system. But one point, at least, is obvious. If ordinary U-P bombs are required as detonators or fuses to set off hydrogen bombs, controlling U-P bombs will also control hydrogen bombs. Beyond that, it seems reasonable to suppose that additional technical measures could be devised to ensure that the special additional ingredients required for hydrogen bombs were not manufactured.[9]

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III. Atomic Power

Method of Production. The heat generated during the "slow" or controlled chain reaction in a pile producing plutonium can, it is believed, be converted into steam and then, by conventional exchange machinery, into electricity. This has not yet been done, but small pilot plants are under construction or design. It is this electrical energy which is loosely described as "atomic power." To produce electric power in quantities which would be of any real economic significance in relation to present and potential production from coal, oil, gas, peat and waterpower would obviously require a considerable number of large atomic reactors and an enormous production of plutonium.

Relation Between Atomic Power and Bomb Production. If even 20 percent of the world's total generating capacity (more than 100 million kilowatts) was produced in atomic reactors, *the accompanying plutonium yield would be enough to make 1,000 or more bombs a year.*[10]

It can therefore be understood why a majority of the UN Atomic Energy Commission tend to regard the international ownership and management of an atomic-power industry, first suggested in the Acheson-Lilienthal Report, as essential to prevent secret diversion of plutonium under a control system. The fact that atomic power means plutonium is also the reason for the "strategic balance" in the Acheson-Lilienthal Report and in the majority proposals of the UN Atomic Energy Commission. It was proposed to distribute the primary plutonium-producing reactors geographically so that if any one nation or group of nations seized plants which produce, say, 20 percent of the world's plutonium in a year, the remaining nations could collectively produce 80 percent, or four times as much, and thus deter an aggressor.

How Much Potential Power from Atomic Energy? This question is directly relevant to the issues of international control. For once the relative costs (and advantages) of atomic power, conventional fuels and water power, are better understood, it is possible, at least partially, to judge the validity of recent Russian objections to the majority plan; objections based on the hindrances the plan would interpose to the unfettered national development of atomic power.

"Breeders." It may be assumed that the "breeding power reactor," the two first experimental forerunners of which are now being constructed for the USAEC, will eventually prove successful. Breeding would make it possible to derive over a number of cycles in the reactor process a much higher yield of plutonium than has hitherto been possible. Instead of, at best, turning no more than a few percent of the uranium metal fuel rods into plutonium, the breeder piles might in a number of cycles succeed in converting 80, 90, perhaps even 100 percent of the rods into plutonium. On a 100-percent utilization basis the fission of one ton of uranium would yield the same heat energy as the burning of three million tons of coal.[11]

Comparison of Atomic Power Resources with Conventional Power Resources. It has been estimated that prewar known deposits of easily mineable uranium—one percent or more metal content in the ore—represent an energy reserve 10 times greater than the proved world petroleum reserves, and only 1/1000th as great as world coal reserves. (This assessment assumes 100-percent successful breeding operations.)

The following table gives some idea of the world resources that are involved:

WORLD RESOURCES IN TERMS OF URANIUM[12]

Minimum uranium available	about 100,000,000 pounds (10^8)
Maximum uranium (total in the upper three miles of one-third of the earth's land surface; mining obviously impracticable)	about 10,000,000,000,000,000 pounds (10^{16})
Minimum thorium (also usable as a fuel)	about 10,000,000-100,000,000 pounds (10^7-10^8)
Maximum thorium (same conditions as maximum uranium estimate)	about 10,000,000,000,000,000-100,000,000,000,000,000 pounds (10^{16}-10^{17})
Petroleum	less than 10,000,000 pounds (10^7)
Coal	more than 100,000,000,000 pounds (10^{11})

(Water-power resources cannot be directly compared in terms of reserves with fuels, but assuming a 1,000-year life, total energy potential in water power has been estimated at between a third and a half that of coal.)[13]

As may be seen from these figures, if breeding is successful, even to the extent of 20 or 30 percent, there are very significant reserves of useful energy in the estimated world resources of uranium and thorium; but the magnitude of the world's coal and water-power energy resources is also so great that world energy requirements could be met from these conventional sources for hundreds of years.

Comparison of US and USSR Power Resources. The Soviet Union, like the United States, is one of the most richly endowed areas of the world with respect to conventional sources of energy and power, and would seem, except for strategic considerations (*e. g.*, vulnerability of its oil fields, or industrial concentrations in remote regions less vulnerable to bombing attack but poor in hydro-electric resources), to have no immediate pressing need for this new energy supply. It has been estimated that its fuel and water-energy reserves constitute about 20 percent of the world total, or not much less than those of the United States.[14]

Technical Limitations. Many technical problems remain to be overcome. Experimental reactors now planned must be built and tested, and additional experimental reactors must then be designed to test the knowledge gained from the first group. The cost of purifying plutonium may make or break atomic power as an economic good. In general, prophecies by AEC officials and other competent scientists as to when the solution of these problems will be achieved suggest 20 years as a minimum.[15]

IV. Economics of Atomic Power

Costs. Despite the uncertainties and multiple unknowns involved in this question, several American economists have attempted to make rough cost estimates, using as their primary base figures the tentative material provided to the UN Atomic Energy Commission by the US delegation in the fall of 1946 to the effect that a 75,000-kilowatt atomic-power plant could be built in the Eastern United States for $25 million and produce power at a cost of eight mills per K.W.H. if 100 percent of the 24-hour capacity of the plant were sold. Since the US average of power consumption (the "plant factor") is only about 50 percent of 24 hours' generating capacity because of low night consumption, this would actually mean a cost of about 14 to 16 mills per kilowatt delivered under average conditions.[16]

Further statistical analysis yields estimates which vary from 13-14 mills per K.W.H. on the high side to a possible low of about three mills per K.W.H. as the absolute minimum after 10 to 30 years of further development, all in 1946 prices. This compares with 1946 costs of

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modern coal steam stations of about five to eight mills. Large hydroelectric stations could in the same period produce power at a cost ranging downward from four mills to one mill or less. [17]

Granted that these cost estimates are based only on fragmentary data and must be read with a tentative eye, they do at least indicate that there is now no clear showing that electric power from atomic reactors can be more cheaply produced, in most instances, than power from conventional fuels or falling water. There may very well be special circumstances, in regions remote from ordinary fuels or water power and without good transportation (or in areas where coal mining is expensive), where atomic power would be more economical. However, even if electricity in atomic plants could be produced at half the cost of conventional power stations, the price to the average consumer in the US, say, would be reduced by much less than 50 percent, since the distribution costs for electrical energy make up about half of the delivered price.

It should be borne in mind also that so long as there is no international control of atomic energy, electric power from this source will hardly amount to much, no matter how low its cost might be. Atomic bombs are so important a military device that no general staff is ever likely to feel that it has enough bombs; and unless plutonium is fed back into the reactors, there is slight possibility of operating them on an economical basis.[18]

V. Military Applications of Atomic Energy

Destructiveness of a Single Uranium-Plutonium Bomb. The report of the British Mission to Japan in 1946 contains a lucid exposition of the probable effects of a single atomic bomb of the first, or Hiroshima model, if used against British cities—which more nearly resemble our own than do the cities of Japan. These estimates for a single atomic explosion, at the most efficient height (about 2,000 feet), with no warning to allow the population to find shelter, and based upon a population density of about 29,000 per square mile, are as follows:

PHYSICAL DAMAGE

	Distance from center	*Number of square miles*	*Number of British houses damaged*
Area of total destruction	up to 1 mile	3.14	30,000 beyond repair
Area of major destruction	1-1.5 miles	3.92	35,000 major damage
Area of minor damage	1.5-2.5 miles	12.57	50-100,000 minor damage

CASUALTIES

50,000 dead, immediately or within eight weeks.
50,000 requiring extensive hospitalization.

DEHOUSING

200,000 persons temporarily homeless but able to return to their homes after these have undergone minor repairs.

100,000 persons requiring permanent rehousing or able to return to their homes only after these have undergone major repairs.

One may note that the results of all forms of bombing in England in World War II were 30,000 killed in London, and 30,000 elsewhere. The number of casualties per Hiroshima bomb would in many, if not in most, American cities probably be smaller because of a population density lower than the 29,000 per square mile in Britain.[19]

These British estimates, it should be noted, rest on the hypothesis of a surprise attack (as at Hiroshima). An adequate warning system and shelter facilities could cut casualties by as much as 90 percent. On the other hand, it is important to realize that two or more atomic bombs simultaneously exploded over a city—or a single hydrogen bomb—would increase the casualty rate several fold by overtaxing fire-fighting, hospital and medical facilities.[20]

Hydrogen Bombs. Uranium-plutonium bombs have a fairly well-established upper limit of size and, therefore, of destructiveness. The Hiroshima model has been improved in efficiency so that more of the fissionable material enters into the reaction, and it has been reported that the bomb tested at Eniwetok was six times as powerful as the Hiroshima bomb (which would mean that its area of destructiveness was more than doubled). But an increase in fissionable substance beyond the limit referred to would merely be wasteful.[21]

No such limit can, at least theoretically, be assigned to the H-bomb. It can be designed 1,000 or more times as powerful as U-P bombs, though it is highly doubtful that the first model will attain such magnitude or that a bomb of this size could be delivered by present aircraft. While all forecasts in this sphere are highly speculative, it is plausible to infer that an H-bomb (= 1,000 X the Hiroshima bomb) would totally destroy an area of at least 30 square miles—in other words 10 times the area destroyed at Hiroshima.

The area of destruction is a function of, among other things, the height-above-ground of the explosion and increases at somewhere between the square root and the cube root of the weapon's explosive force. As a result of blast and heat a single H-bomb would, it is safe to assume, pretty well obliterate the largest city in the world; even so it would be wasteful in the sense of "overkilling" or saturating the target with greater explosive force than needed. Accompanying and residual radioactivity would be enormous and, for a bomb 1,000 times as great as at Hiroshima, the general poisoning effects on the immediate and surrounding areas are incalculable.

Bombing Methods. Such methods of delivery as smuggling disassembled bombs into cities, for detonation as supermines, can play no real part in the waging of war, even if theoretically feasible. The use of submarines against coastal cities and the method of dropping bombs into bodies of water adjacent to large cities in order to bring about widespread contamination by radioactive spray, though undoubtedly effective against a few targets, are also limited in possible application.[22]

Seemingly more practical methods involve the use of long-range rockets and guided missiles. Competent opinion in this area inclines to the following view. There are no guided missiles in existence or early prospect capable of being effectively employed over intercontinental distances. Short-range missiles have been considerably improved as to accuracy, but very long-range missiles (2,000 miles or more), despite intensive research and development, are merely weapons of the future. If such a weapon could be built today it would (a) be enormously expensive and (b) could, as Vannevar Bush has said, only be "depended upon to hit within 150 miles of its target with reasonable frequency." This probability can certainly be improved upon; one may anticipate missiles more accurate and therefore less wasteful. At the same time, Bush warns, the cost of such missiles would continue to be "astronomical" and it is open to question whether even the greatest nation could afford the burden of immensely costly atomic bombs carried by immensely costly rockets that cannot be depended on to hit even a large city target.[23]

If piston-engine or jet-propelled aircraft is used, the major consideration is the distance to be covered in bombing missions. This will determine, other things being equal, both the percentage of bombs delivered and the degree of accuracy in delivery on the target.

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Over relatively short distances, up to perhaps 2,000 miles (round trip), jet bombers protected by an escort of jet fighters may be employed. Even with radar warning nets, until such weapons as the ram-jet anti-aircraft missile with a homing device and proximity fuse are fully developed, the offense would seem to have the edge over the defense in bombing missions to targets within a thousand miles of home base. At the present time the US has access to bases within "short range" of some large Russian cities, but the Russians are not in the same position as regards US cities.[24]

For intercontinental missions reliance is now placed upon conventional aircraft, such as the B-36. The advantages claimed for this craft are both speed (350 miles per hour) and range (about 5,000 miles for a two-way flight). But these are misleading figures in that speed and range are in a sense antithetical properties: high speeds can be maintained only over short distances, and for intercontinental bombing missions the average speed of a B-36 would be well under 250 miles per hour. Since no fighter could accompany a bomber over such distances, the attacker would have to place his reliance upon sneak raids, high altitudes, and night or bad-weather operations.[25]

Wastage in Delivery. In addition to losses from interception, a significant wastage of bombs would result from inaccuracy at high altitudes and bombing by radar at night or through overcast. The mere identification of unfamiliar targets by radar is difficult. And the inaccuracies caused by unknown cross winds between the bomber at 40,000 feet or more, and the ground, are sufficient so that even with a circle of major destruction of three to five miles it could easily happen that industrial targets would be missed entirely or damaged only slightly in radar bombing.[26]

Thus the only target likely to be hit with a fair degree of accuracy in high-altitude, long-distance, radar-sighted bombing with uranium-plutonium bombs is the housing of large cities. The greatly increased area coverage of hydrogen bombs might make it more feasible to hit smaller industrial targets. But if these industrial targets were on the outskirts of cities, as they usually are, most or all of the adjoining city would probably be destroyed as well. Either case boils down to mass destruction, pure and simple.

Expert estimates of the percentage of atomic bombs which could be delivered with reasonable accuracy over very long ranges have varied from more than 80 percent to a low of 10 percent. For our purposes we assume 30-percent to 50-percent successful delivery in the case of very long-range, high-altitude bombing against large cities, compared with 75 percent for short-range atomic bombing.[27]

Number of Bombs Required for Given Amount of Destruction. Published estimates of the number of atomic bombs (on target) that would be required to equal the destruction caused in Germany by conventional explosives and incendiaries (1.25 million tons) range from fewer than 100 to more than 2,000 (Hiroshima type).[28]

To our knowledge, no one has published any careful estimates of the number of U-P bombs on target required to cause any specific degree of destruction in the United States or Russia. Comparison with Germany may bring the problem into approximate focus.

The most reliable figures show:

¶ There are many more cities in the 100,000 + population class in Russia and the United States than there were in wartime Germany. (Russia, 1939 census: 82 cities; US, 1940 census: 92 cities; wartime Germany: 61 cities.)

¶ The number of persons living in these cities (according to the several censuses above) was as follows: Russia, 26 million; US, 38 million; wartime Germany, 25 million. (Note that the US figure is about 50 percent higher than the other two.)[29]

¶ The proportion of total national population living in cities of 100,000 or more was as follows: Russia, 15 percent; US, 28 percent; wartime Germany, 32 percent.[29]

¶ The British Mission estimates hold that one Hiroshima-type bomb would dehouse 100,000 persons in British large cities, either permanently or for a lengthy period while major repairs were undertaken. We shall assume further that an "improved" uranium-plutonium bomb, with perhaps up to eight times the power of the Hiroshima bomb, might double the area of destruction and raise the number of those dehoused to 200,000.

We may now use these figures in connection with the key datum that the Allied bombing of 61 German cities of 100,000 or more destroyed the housing of 7,500,000 persons (*i.e.*, 10 percent of the country's total population). Taking this as a minimum objective of mass-bombing attacks—which for atomic bombing seems the only plausible assumption as to strategy—it is possible to make very rough estimates as to the number of improved atomic bombs required, as shown in the table which follows.

How Long Before the Stockpiles Are Ready for War? For the US, perhaps two to three years in terms of U-P bombs. It is impossible to attempt a forecast with respect to H-bombs.

For the Russians, assuming (1) that they have an adequate supply of uranium (which is not unlikely), (2) that their technology suffices for the task (also a fair assumption in view of their war

THE NUMBER OF BOMBS

MILITARY OBJECTIVE: To inflict housing damage on large cities in Russia or the US by improved U-P bombs, comparable to damage inflicted on German cities by conventional bombs in area raids.

QUESTION: How many U-P bombs are required?[1]

	Object	*Number improved U-P bombs required on target*[3]	*Percentage of wastage in delivery*	*Number of U-P bombs required, allowing for wastage*	*H-bombs?*
USSR	Dehousing 20 million persons—10% of *total* national population[2]	100	*Long range* 50-70% *Short range* 25 %	*Long range* 200-235 *Short range* 135	5
USA	Dehousing 15 million persons—10% of *total* national population[2]	75	*Long range*[4] 50-70%	*Long range* 150-250	5

[1]No precise accuracy is intended by this table; it is merely an illustration of the general magnitudes involved. If similar estimates were attempted on the basis of casualties rather than physical damage to housing, the figures on the number of bombs required would perhaps be somewhat lower. Precision in these matters can hardly be expected or achieved even in the most favorable circumstances, as was demonstrated by the wide margin of error in the military-planning estimates of bomb tonnages required against Germany in the last war, as compared with the quantities which were actually used.

[2]Using estimates for current population of 200 million for the USSR and 150 million for the US.

[3]Assuming that (improved) uranium-plutonium bombs will be increased in efficiency so as to double the area of complete and major destruction—and thus destroy or severely damage housing for 200,000 persons per bomb.

[4]No short-range figures are given for the US because of the absence of bases.

[5]Estimates of the number of H-bombs required involve too many factors to lend themselves to presentation in tabular form. Assume, for example, that an H-bomb might ultimately be developed which would destroy an area five times as great as an improved U-P bomb, or housing for one million persons. The number of cities with a population of a million or more is very small in all countries; and for cities below that size, the H-Bomb would not achieve its maximum potential effect. All that can be said, without making a detailed city-by-city calculation, is that the number of H-bombs required might be 25 to 50 percent of the number of improved U-P bombs needed for the same job.

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production record) and (3) that they can achieve a rate of output equal to 50 percent of the present US rate (a safe, minimum premise), they should have a stockpile of at least 100 bombs by the beginning of 1955. A hydrogen-bomb forecast is impossible except to say that the Russians are, in this respect, probably on fairly equal footing with the United States.

Footnotes

(Many of the following references and a good many others can be found in the excellent international bibliography of the United Nations, published in March, 1949. Sales No. 1949. IX. 1. Vol. I.)

[1]Many prewar published sources. Convenient popular summaries are contained in several speeches by USAEC officials, including those by Merritt (February 16, 1949) and Gustafson (September 23, 1948, and March 9, 1949). For a review of prewar published information on Soviet uranium resources, see D. B. Shimkin, "Uranium Deposits in the USSR," *Science*, January 21, 1949.

[2]USAEC and US Geological Survey, *Prospecting for Uranium*, Washington, 1949, pp. v-vi.

[3]Report of the Scientific and Technical Committee, Part IV of the *First Report of the UN Atomic Energy Commission, 1946*; also reprinted by the US State Department.

[4]Article by I. V. Kurchatov, p. 44 of US Atomic Energy Commission, translation made available to the press in December, 1949, document CP-3021. *Time*, January 31, 1949, p. 66: "At 26 pounds of U-235 per atom bomb [a current guess], this early [Russian] production could have yielded theoretically enough 'fissionable material' for four bombs." *Life*, February 27, 1950, p. 100, "about 30 pounds" needed for one bomb. The Washington *Post*, January 14, 1949, AP dispatch from Meadville, Pa., quoting Professor J. A. Campbell of Oberlin College in an address to the American Chemical Society: "In spite of all the supposed secrecy about the bomb, it is easy to show that the explosive charge weighs in the neighborhood of 20–30 pounds and occupies a sphere of three or four inches in diameter—about the size of an indoor baseball." (Uranium metal at 18.5 grams per cubic centimeter; 10,000 grams yield 540 cubic centimeters, slightly over a pint in volume.) Hans Thirring, the Austrian physicist, places the upper limit at 10 kilograms. *Geschichte der Atombombe*, Vienna, 1946, p. 134. Many similar estimates have been published, including that of the noted British physicist, Marcus Oliphant.

[5]Smyth Report, para. 9.26. *Scientific Information Transmitted to the United Nations Atomic Energy Commission by the United States Representative* (B. M. Baruch) on June 14, 1946. US Department of State Publication No. 2661, p. 28. Hearings before the Joint Committee on Atomic Energy, Congress of the US, 81st Congress, First Session, "Investigation into the United States Atomic Energy Project, Part 11 (June 20, 1949), pp. 460–469.

[6]Smyth Report, para. 6.32 and 6.41, *viz.*, "releasing energy at the rate of 500,000 to 1,500,000 kilowatts; Oak Ridge pile, para. 8.43. Dr. W. K. Lewis, Massachusetts Institute of Technology, Hearings before the House Committee on Interstate and Foreign Commerce, April, 1947, on H.R. 2185: p. 316: Hanford piles, heat output = 3 billion B.T.U. per hour.

[7]Smyth Report, para. 6.32 (taking the average of the limits given); speech by Gustafson of USAEC, March 9, 1949, quoting report by Menke for AEC (mddc-1104). Also J. R. Menke, engineer with Manhattan Project, later with USAEC, *Bulletin of the Atomic Scientists*, April, 1948, p. 115 *et seq.* Thirring, *op. cit.*, p. 110.

[8]*Business Week*, April 30, 1949, "From Bombs toward Power"; article by J. A. Campbell, *Armed Forces Chemical Journal*, April, 1949.

[9] H. Thirring, *op. cit.*, Chapter 42, "Die Superatombombe": *Science News Letter*, February 11 & 18, 1950. John J. McCloy (address in 1946), *Bulletin of the Atomic Scientists*, January, 1947, p. 5; Wm. L. Lawrence, New York *Times*, February 1, 1950, p. 1.; *Seventh Semi-Annual Report of the US Atomic Energy Commission*, Washington, January, 1950, pp. 102–103; E. Teller, "How Dangerous Are Atomic Weapons?," *Bulletin of the Atomic Scientists*, February, 1947, p. 36; A. Einstein, New York *Times*, February 13, 1950, p. 3.

[10]Twenty million kilowatts of electric power, at a high-heat conversion efficiency of 40 percent would require primary reactors with total power of 50 million kilowatts, which would produce plutonium at the rate of about 50 kilograms per day, or enough for five bombs per day. Using a system of primary power reactors producing plutonium and secondary power reactors consuming plutonium only, plutonium production would be cut in half, or 2.5 bombs per day, or somewhat over 900 per year. *Cf.*, "Atomic Energy, Its Future in Power Production," *Chemical Engineering*, October, 1946.

[11]Menke, *op. cit.*, para. 2.8.

[12]Estimates by Menke in "Nuclear Fission as a Source of Power," *Bulletin of the Atomic Scientists*, April, 1948.

[13]*Energy Resources of the World*, Department of State Publication No. 3428, (1949), Table 62, p. 120.

[14]*Energy Resources of the World:* same table.

[15]M. H. L. Pryce, "Atomic Power; What Are the Prospects," *Discovery*, March, 1948 (reprinted in August, 1948, issue of *Bulletin of the Atomic Scientists*). R. F. Bacher, Speech in Boston, February 9, 1949, AEC release. L. R. Hafsted, Speech in Pittsburgh, December 6, 1949, AEC release.

[16]State Department Publication No. 2661, pp. 125–127.

[17]Isard and Lansing, "Comparison of Power Cost for Atomic and Conventional Steam Stations," *Review of Economics and Statistics*, August, 1949; S. H. Schurr, "Atomic Power in Selected Industries," *Harvard Business Review*, July, 1949; *Chemical Engineering*, October, 1946, "Atomic Energy; Its Future in Power Production"; Menke, *op. cit.*

[18]Vannevar Bush, *Modern Arms and Free Men*, N. Y., 1949, p. 107 *et seq.*

[19]*The Effects of the Atomic Bombs at Hiroshima and Nagasaki;* Report of the British Mission to Japan, H.M.S.O., 1946, p. 89. R. E. Lapp in a study made for the US Department of the Army arrived at a figure for casualties in American cities similar to the British figure, but predicated his calculations on the use of a bomb 2.5 times as powerful as the Hiroshima model. The similarity of the casualty estimates, despite the difference in the power of the bombs, is largely accounted for, presumably, by differences in population density. R. E. Lapp, "Atomic Bomb Explosions—Effects on an American City," *Bulletin of the Atomic Scientists*, February, 1948. Population densities for American cities can be roughly calculated from the *Statistical Abstract* of the US, Cities Supplement, Washington, 1944 (table 5).

[20]R. E. Lapp, *Must We Hide?*, Cambridge, Mass., 1949, p. 10.

[21]Medical Aspects of Atomic Weapons, prepared for the National Security Resources Board by the Department of Defense and US Atomic Energy Commission (mimeographed), December 22, 1949. The Smyth report gives the release of energy from the complete fission of one kilogram of U-235 as the equivalent of 20,000 tons of TNT (para. 2.35), and 10 percent as the portion of U-235 in the bomb, that would actually fission (para. 4.23). J. A. Campbell also estimates 10-percent efficiency in the first bomb. "How to Make an Atomic Bomb," *Harper's Magazine*, December, 1949, p. 38. James Reston, New York *Times*, January 17, 1950 (*Re:* Eniwetok).

[22]R. E. Lapp, *op. cit.*, pp. 77–81; Vannevar Bush, *op. cit.*, p. 65.

[23]P. M. S. Blackett, *Fear, War and the Bomb*, N. Y., 1949, pp. 52–54. H. E. Wimperis, in *Atomic Energy: Its International Implication*, Royal Institute of International Affairs, London, 1948, pp. 51–52. Bush, *op. cit.*, p. 37. *Report of the President's Air Policy Commission*, Washington, 1948, pp. 16–17.

[24]On the ram-jet anti-aircraft missile, Bush, *op. cit.*, pp. 37–38.

[25]Hearings before the House Committee on Armed Services, 81st Congress, First Session: *The National Defense Program—Unification and Strategy*, October, 1949, especially the testimony of Navy experts on October 8 and 10. Also hearings before the same committee in August, 1949, on H.R.234, especially the testimony of General Kenney (p. 115 *ff.*) and General LeMay (p. 139 *ff.*).

[26]Testimony of Commander Tatom, p. 170 of October hearings in preceding footnote.

[27]Colonel D. O. Smith, USAF, "Operational Concepts for Modern War," *Air University Quarterly Review*, Montgomery, Ala., Fall, 1948, pp. 8–9, 14. S. G. Possony, "Strategic Air Power," Washington, 1949, p. 137. Letter from Admiral D. C. Ramsey, USN, in *The Atomic Bomb and the Armed Services*, Brodie and Galloway, Library of Congress, Washington, May, 1947, p. 54.

[28]R. E. Lapp, *Must We Hide?*, p. 61, estimates that 75 atomic bombs, plus some 200,000 tons of conventional explosives for small targets, would achieve comparable physical damage. A similar figure may be derived by using the housing destruction estimates from the British Mission Reports cited above, and the actual housing destroyed in area raids against the major German cities in the US Strategic Bombing Survey study, *Area Studies Division Report*, Washington, 1947, p. 3. For higher estimates see P. M. S. Blackett, *Fear, War and the Bomb* (American Edition of *The Military and Political Consequences of Atomic Energy*), New York, 1949, p. 60. Possony, *op. cit.*, p. 61.

[29]Germany: US Strategic Bombing Survey, *Area Studies Division Report*; US: *Statistical Abstract of the US*, Washington, 1948; USSR: Lorimer, *The Population Statistics of the Soviet Union: History and Prospects*, Geneva, 1946.

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